ENGINEERING

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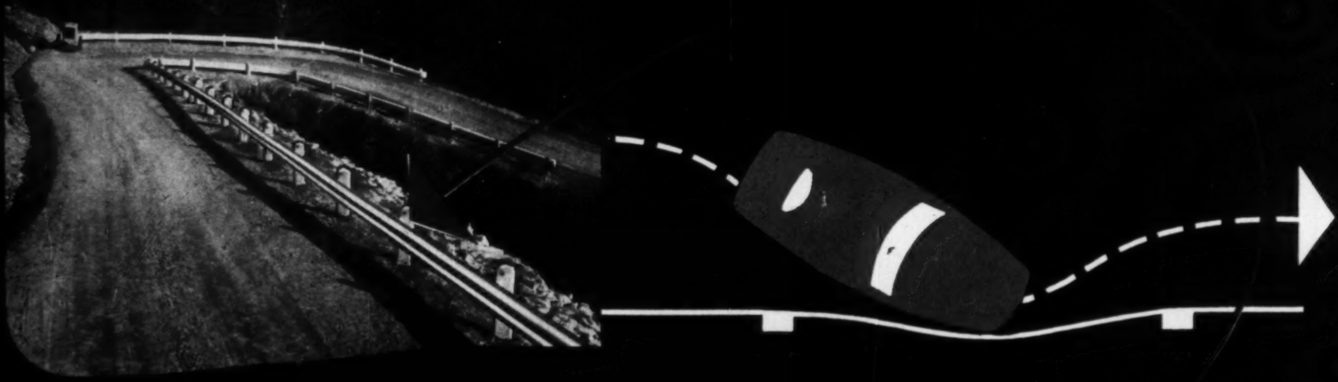

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FLEX-BEAM is only one of many products developed by Armco during the past 40 years to solve specific drainage and construction problems. Other products include HEL-COR Perforated Drainage Pipe, Armco Steel Buildings, and sturdy MULTI-PLATE bridges.

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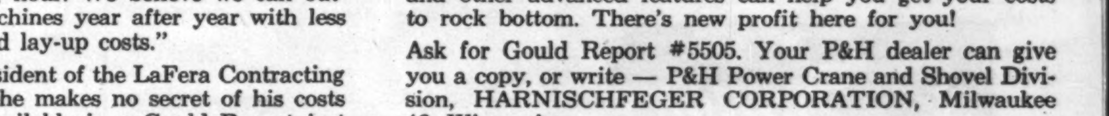

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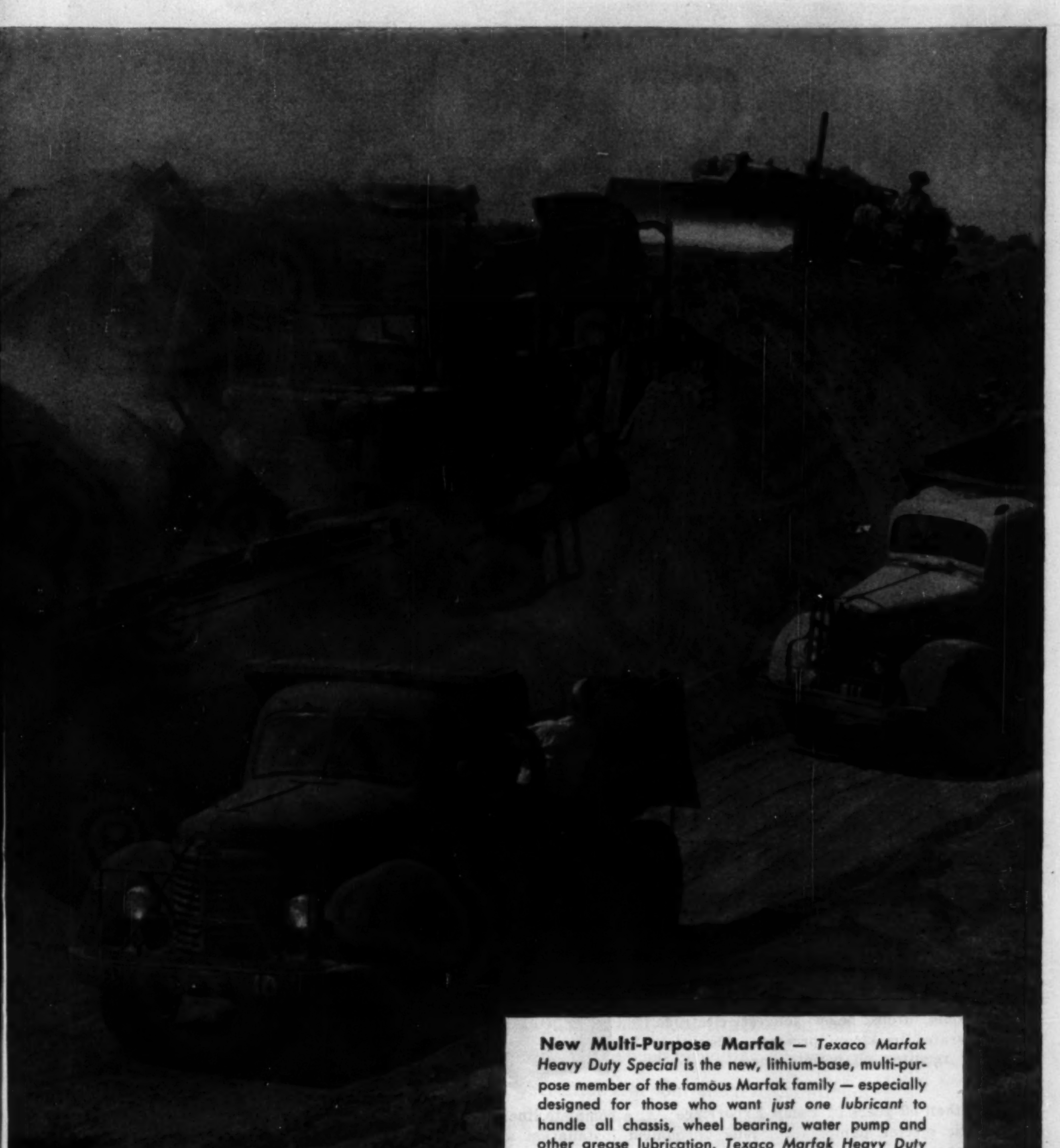

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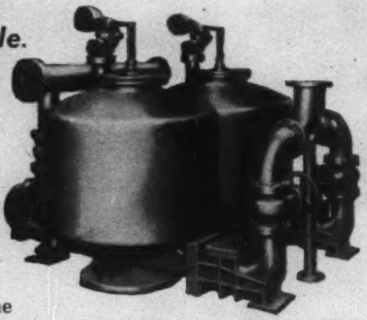
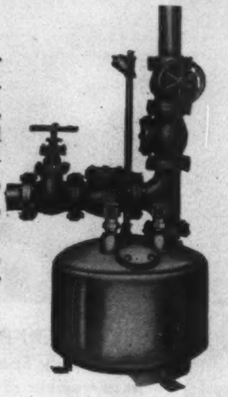
completely enclosed . . . hermetically sealed . . . completely sanitary.

maintenance cost negligible.



The SHONE Pneumatic Ejector is for capacities up to 1,000 g.p.m. and heads to 50 ft. It consists of a closed receiver or pot with check valves on the inlet and discharge; a pilot slide valve actuated by two open cast iron bells suspended in the receiver; and a piston valve controlled by the pilot slide valve which actuates the pressure and exhaust connections. Closing of exhaust connection admits compressed air to receiver and forces contents through discharge check valve and discharge charge pipe.

Sturdy, simple parts are few — movement is limited — wear is negligible.



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READER COMMENT

Better Architects

Sir: The editorial "Better Architects, Better Building", (ENR Sept. 22, 1955, p. 64) prompts me to state my belief that the colleges are turning out architects who think only in terms of very modern style. They are not at all familiar with the traditional—are not very flexible. Most of them want to be in business for themselves; they do not seem to be willing to get in an organization, roll up their sleeves and make working drawings for a number of years so that they really will learn something.

What we really need are plain ordinary architectural draftsmen, not college trained architects, as there are plenty of them. There should be some sort of a trade school movement where we could train men in construction draftsmanship. For many years the trade schools have been training people in mechanical drafting for machine work and are doing a good job. I am certain that they could do the same in training architectural draftsmen.

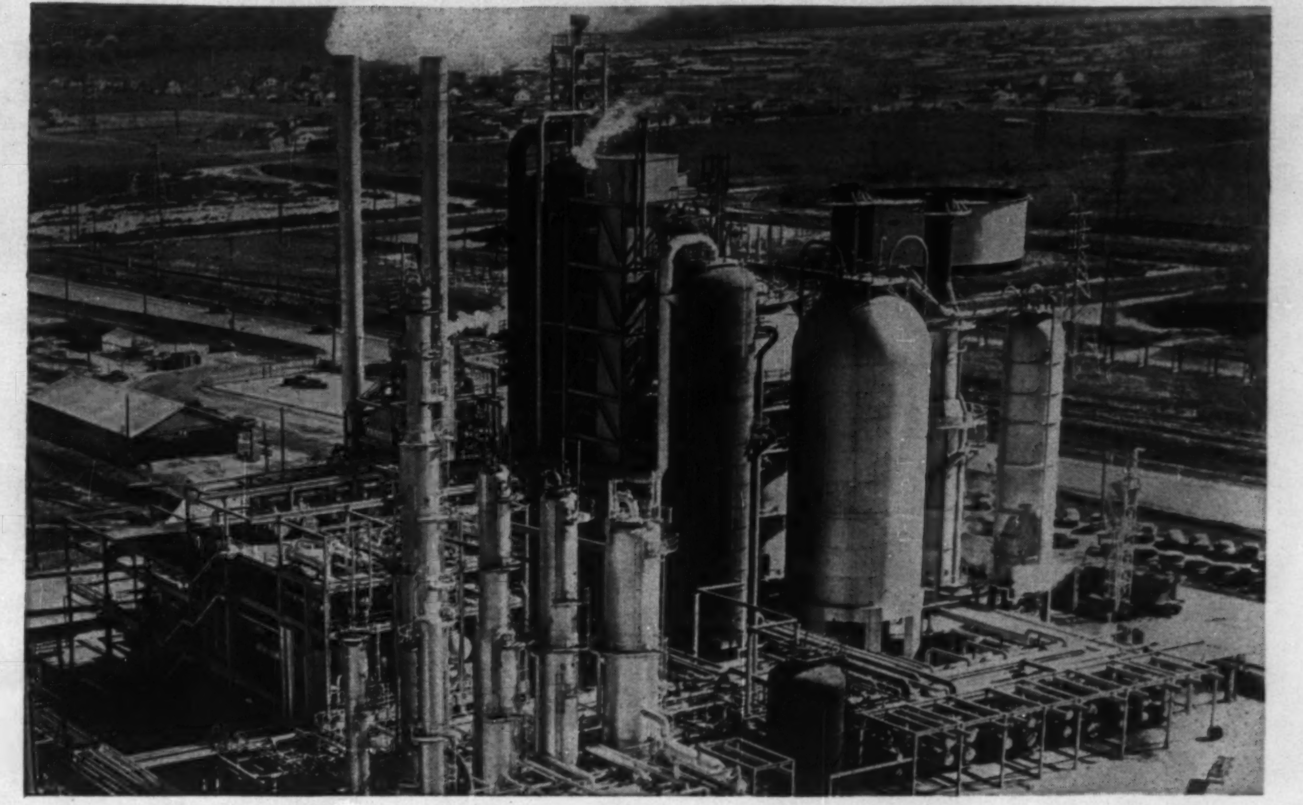
Leo F. Caproni
Caproni Associates,
Architects & Engineers
New Haven, Conn.

Engineer Grads

Sir: An engineer student usually receives sufficient basic education in school to enable him to develop rapidly thereafter into a highly useful and valuable member of an engineering organization. Upon graduation, however, many young engineers are confronted suddenly with the necessity of performing monotonous and narrow types of technical work. Justifiably, many are disappointed with the prospect of a dull and comparatively poorly paid future in engineering. If they have a flare for sales or other more interesting and profitable fields of endeavor, they gradually move into positions either not closely related to professional engineering work or fields with no engineering connection whatsoever. At least one-half of the engineers I have known intimately have followed this trend away from technical work.

My own judgment and experience indicate that it is a good long-term investment to assign and train technical personnel so that they will take more interest in their work and be able to perform varied functions. Very few engineers seem to want to leave an organization operating under this principle. The benefits to the employers

(Continued on page 10)



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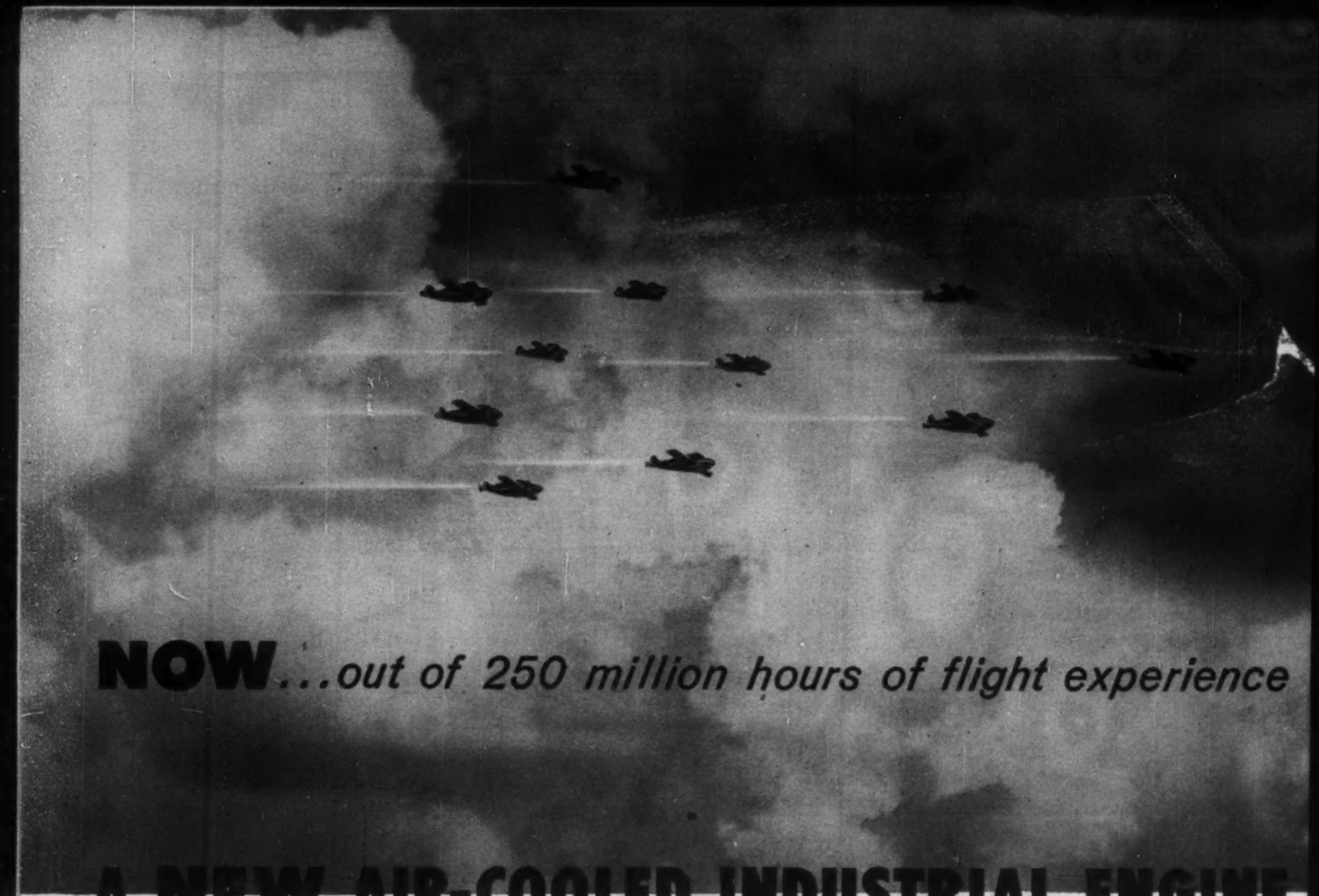

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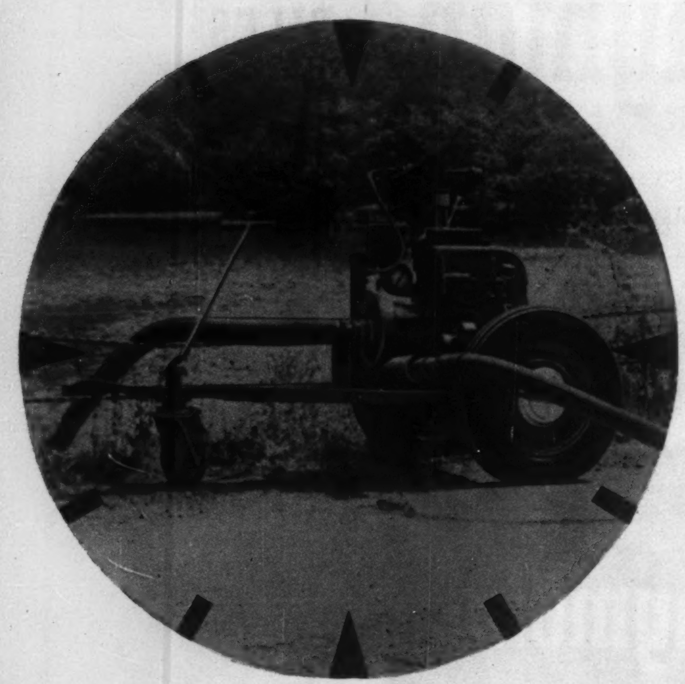

RUN FOR MORE THAN 1,600 CONTINUOUS HOURS! In Williamsport, Pa., this C2-90 was test-run in an actual pumping application for more than 1,600 hours continuously, without overhaul or any service except gas and oil. The engine is still in active service as a demonstrator.

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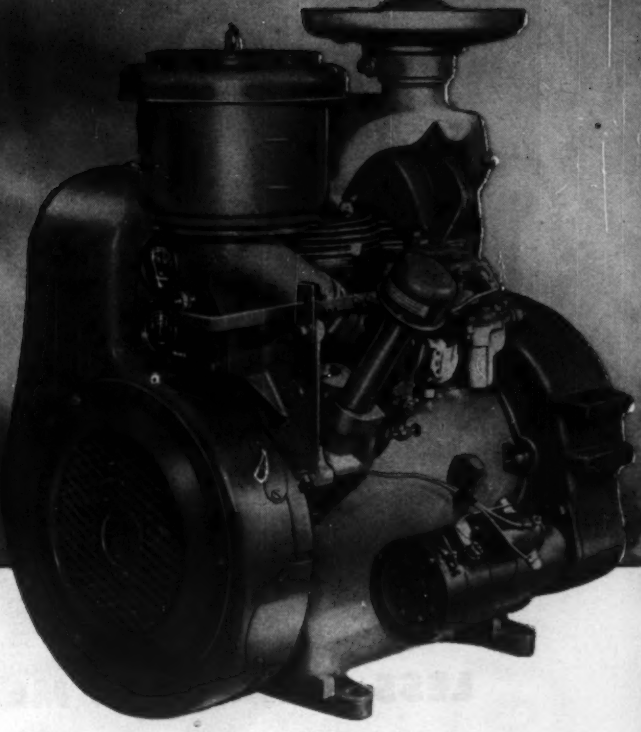

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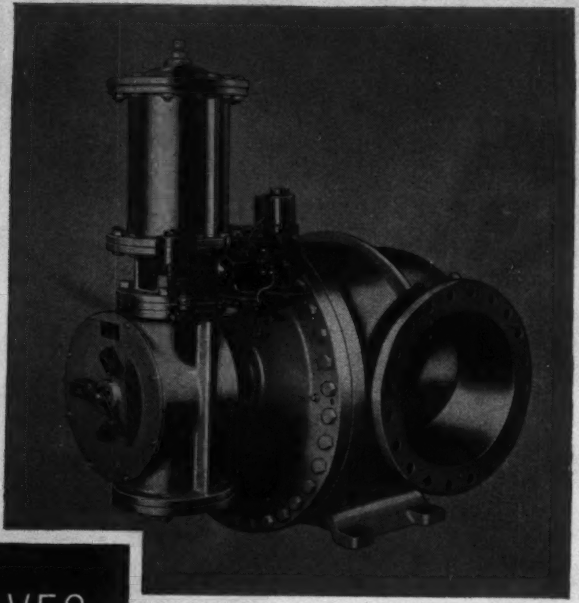

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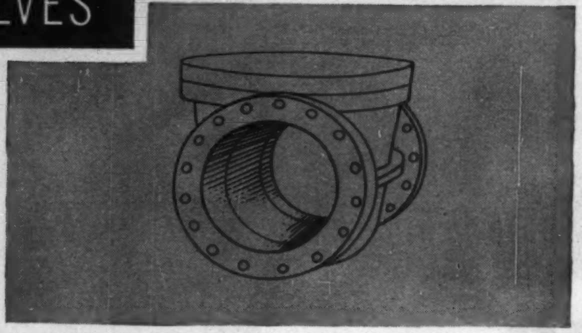

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READER COMMENT

are less men to train and increased production due to better morale. A fair system of profit sharing and/or systematic program of promotion are further factors resulting in less turnover and better work attitude.

Inasmuch as a large percentage of young people appear to prefer technical work of an interesting nature to other ways of earning a livelihood, the real answer to a shortage of technical workers is the institution of management practices which will result in maintaining their interest; also provide somewhat equal pay and equal chances for advancement to what are available in other fields of endeavor. The reason for a shortage is definitely not basic aversion to technical work. A surprisingly large proportion of youngsters talk about their ambitions to be "big engineers."

GEORGE O. CONSOER
Consoer, Townsend and Associates
Consulting Engineers
Chicago, Ill.

Correction—Incinerator Story

An unintended puzzle confronted readers of the article "Incinerator Meets Strict Tests" in our issue of Sept. 22, 1955 because the last half of the article appears on page 24 and the first half on page 25, instead of vice versa. This error in makeup, which never should have happened but did, requires that the reader begin the article with the last paragraph in the first column on page 25, read the next column on page 25 and then return to page 24 to complete the story.

CALENDAR

International Road Congress, Dolmabahce and Yilditz Palaces, Istanbul, Turkey, Sept. 26-Oct. 16.

First National Prestressed Concrete Short Course, Maritime Base, St. Petersburg, Fla., Oct. 10-12.

Federation of Sewage & Industrial Wastes Associations, Ambassador Hotel, Atlantic City, N. J., Oct. 10-13.

National Society of Professional Engineers, fall meeting, Peabody Hotel, Memphis, Tenn., Oct. 14-15.

Southeastern Association of State Highway Officials, annual convention, Charleston, W. Va., Oct. 17-19.

National Safety Council, annual meeting, Conrad Hilton Hotel, Chicago, Ill., Oct. 17-21; construction section, Oct. 17-18.

First Western Conference on Asphalt in Hydraulics, University of Utah, Salt Lake City, Utah, Oct. 19-20.

National Council of State Boards of Engineering Examiners, annual meeting, Sheraton-Park Hotel, Washington, D. C., Oct. 20-22.

Institute of Traffic Engineers, annual meeting, William Penn Hotel, Pittsburgh, Pa., Oct. 23-27.

American Society of Civil Engineers, annual meeting, Statler Hotel, New York City, Oct. 24-28.

California Section, American Water Works Association, meeting, Memorial Auditorium, Sacramento, Calif., Oct. 25-28.

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MARION 43-M	1	22'-6"	16'-4"	100'-0"	*27	*35	—	1—1¼	415
MARION 362	1½	24'-8"	18'-2"	100'-0"	37	—	—	1½—2	398-D
MARION 372	—	—	—	100'-0"	43	—	—	—	—
MARION 83-M	2	24'-8"	18'-2"	120'-0"	60	—	—	2—2¼	414
MARION 87-M	—	—	—	140'-0"	75	—	—	—	—
MARION 93-M	2½	27'-4"	20'-0"	120'-0"	80	—	—	—	397-E
MARION 101-M	3	27'-4"	20'-0"	120'-0"	84	—	—	—	417
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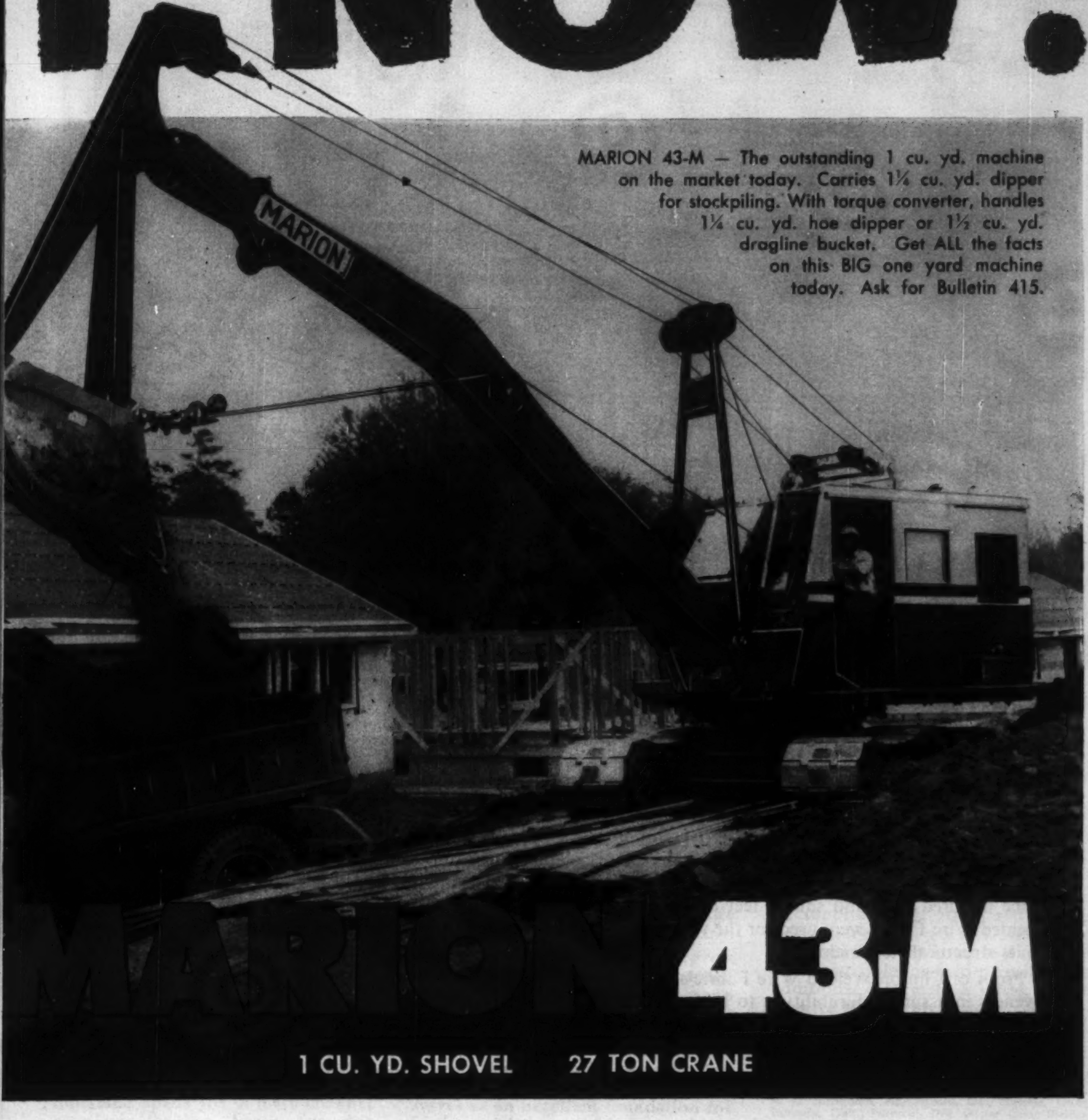

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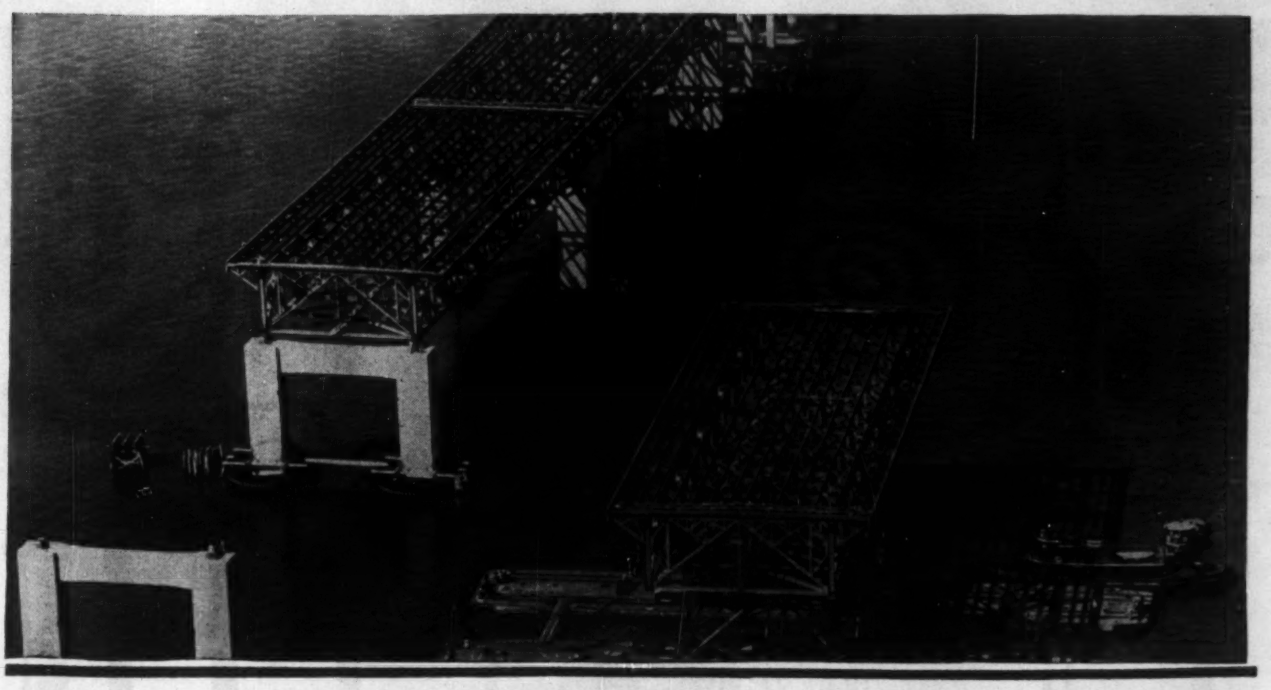

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ONE OF THE important links of the New York-Buffalo New York State Thruway is the $60-million Hudson River Bridge between Tarrytown and South Nyack, N.Y., which is to be ready for use later this year. This important portion of this new highway comprises nineteen 250-foot units, such as those shown above, and a 1,212-foot main span and 602-foot side spans for a main-channel cantilever bridge. Spans for this bridge are being fabricated and erected by the American Bridge Division, United States Steel Company.

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

PREVAILING WAGE ISSUES—AGC officials, attending mid-year policy board meetings in Minneapolis, indicated continued concern over the federal government's "prevailing wage" policies (page 21). They warned of efforts to incorporate Davis-Bacon Act provisions in new highway legislation; reiterated objections to TVA labor agreements; and noted gains made in the safety program.

Meanwhile, in Florida, contractors were fighting labor's contention that the new state "prevailing wage" law intends that union wage scales be used for wage determinations (page 106).

ENGINEERS' LABOR PROBLEM—Consulting engineers also had a controversial labor matter to think about this week. The National Society of Professional Engineers asked the U. S. Supreme Court to overturn a decision holding a consulting engineer's staff subject to the Fair Labor Standards (wage-hour) Act (page 106).

A BIG GAP FILED—The Bureau of Public Roads has complete its overall designation of the nation's interstate highway system by approving the general location of 2,300 mi of highways in and around 102 urban centers (page 23). This will put vitally-needed urban road connections in line for the increased federal assistance that will be afforded the interstate system by whatever "grand plan" for highway aid the next session of Congress may finally settle on.

A NEW LOOK AT SLUM CLEARANCE—A House subcommittee was scheduled to meet in New York City this week for the first of a series of hearings designed to find out why slum-clearance programs have bogged down (page 26).

Main object of the inquiry is Sec. 220 of the Housing Act of 1954 providing for loan insurance on housing built in slum-cleared areas. Not even FHA had been willing in the past to insure such loans, and despite Sec. 220 FHA still has not made a single commitment.

NOW UP TO THE VOTERS—After two years of legislative wrangling over where to locate the reservoirs for a major expansion of New Jersey's water supply system, action finally has been taken that will put the program up for November referendum (page 22.)

ATOMIC AGE TIDBIT—Spokane County Engineer Clyde J. Chaffins complains that eager-beaver prospectors have been hacking holes in county roads and have been leaving rock debris on roadways after blasting roadside claims.

He acknowledges that it's legal to stake claims over county roads, but warns that any Geiger-counting prospector caught damaging a road surface is going to have to clean up his mess—and pay for repairs.

WATER... guardian of the city

From earliest times, mankind has recognized water as the guardian of its safety. The medieval castle relied on its water-filled moat to discourage attack. Today, water is still man's first line of defense against disease and fire.

The vital pipelines which form this first line of defense are the prime concern of farsighted water works officials. More and more of them are turning to LOCK JOINT CONCRETE PRESSURE PIPE on the basis of time-tested performance. The danger of crippling the city's water supply and sanitary facilities through burst or ruptured pipe does not exist in Lock Joint pipelines. The pipe's initial high carrying capacity is permanent, assuring ample water and pressure to combat the hazards of fire.

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WASHINGTON OBSERVER

Eisenhower's importance to federal public works programs can hardly be overestimated. Federal policies important to construction are being surveyed to see what's ahead.

Eisenhower backed programs to pump billions into new public works. His prestige has been behind big construction programs in all the important categories: highways, reclamation, housing, military bases, and the like.

Perhaps most important though is his creation of a Republican philosophy that gives the GOP political and economic justifications for big public works programs.

•

"Partnership" is the key to this philosophy. Under this concept federal agencies should not dominate, but should be the partner of the states and private enterprise wherever possible in developing and carrying out public works programs.

The Administration backs public works to keep the country growing. The theory is that failure to keep highways, water development, housing and the like in line with the country's vast growth in population and living standards could be a brake on our prosperity. In effect, the Eisenhower men say: These public works are absolutely necessary; they're no longer to be considered either as "pork barrel" or pump-priming.

By getting localities and private enterprise to shoulder more of the financing burden, the Administration hopes to step up construction of urgently needed public works for which federal funds might not be available for years to come.

•

Here's how the big construction programs shape up in the new political situation brought on by Eisenhower's illness.

Highways: The Administration still is trying to find its way between conflicting proposals on how to finance the multi-billion highway building program put to Congress this year. Eisenhower's backing could mean everything when the chips are down. The Administration is, of course, completely committed to getting the roads built.

Military construction: Programs here will be cut back little, if at all.

Water resources: With or without Eisenhower, the Administration will continue to back big programs—Upper Colorado, for instance, and other western reclamation and power dams. In the last year or so, new starts have been backed in significant numbers.

Housing: He has backed public housing, and also created new programs to give private builders government help to build in blighted areas. Credit tightening is being applied to prevent a boom-and-bust situation from arising. Officials are completely committed, however, to keep starts at present high levels, they want no real downturn.

•

Eisenhower's insistence on thorough staff work will mean a lot during the months just ahead. This can help to keep significant conflicts inside the official team from arising during this period.

However, in another 10 weeks or so key decisions have to be made. The budget for the year beginning next July 1 will have to be wrapped up, for instance. Last word on the plans for spending of billions can only be made by a President; his is the authority that can say to a Cabinet officer, "This much you get, and no more."

THE
AROUND WORLD

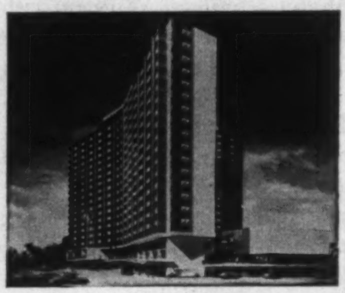
Hilton Makes Hotel History

Ingenious Design Cuts Construction Costs on Dallas' 1001-Room Statler-Hilton

● Soon to open in Dallas, Texas, is the luxurious 18-story Statler-Hilton, one of the largest hotels built in 25 years, and latest in the group of 28 hotels welded together by Conrad N. Hilton into the world's greatest hotel organization.

Construction cost of this 1001-room hotel was $9,350. per room ($1.54 per cu. ft.), against an $11,000-per-room average for other new hotels in the system. The reinforced-concrete structural system not only saved money but contributed to the esthetic and functional development of the design.

Of flat-plate construction, the building is T-shaped, with three wings, each about 156 ft. long and 48 ft. wide, radiating from a central core. There are only two longitudinal rows of columns in each wing, with floors cantilevered 10 ft. beyond column centerlines to support the sandwich-panel walls. Floor slabs are 8 in. thick; no drop panels or column capitals used; only painting was required.



In this latest example of the advantages of reinforced-concrete frame construction, a total of 48,305 bbls. of Lone Star Cement was used. Equally proud is Lone Star of the part its products have played in other famous Hilton Hotels—the Waldorf-Astoria, the Shamrock-Hilton, Houston, and the new Statler-Hilton, Hartford, Conn.

As is so often the case, quality has a way of attracting quality.

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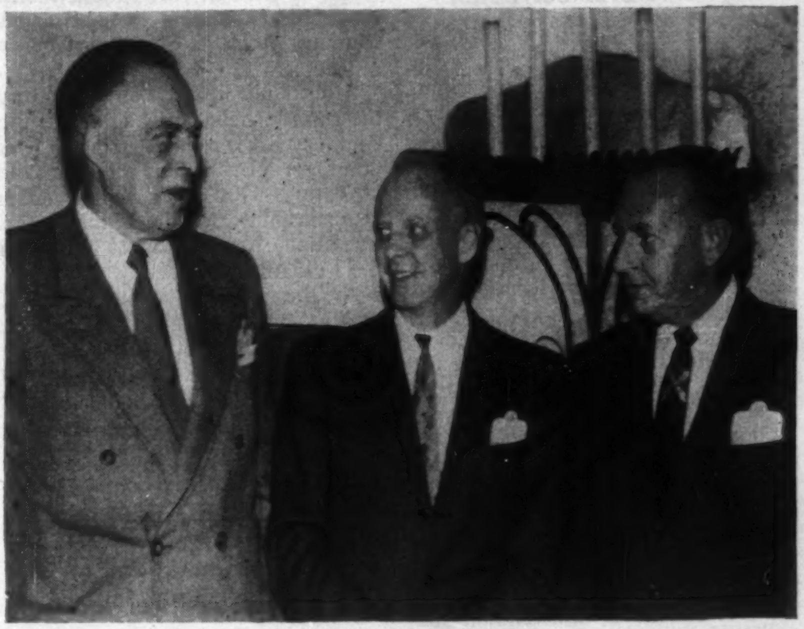


Ray V. Johnson, of Winston Bros. Co., serving as president of the Minnesota AGC, host chapter for the meeting, extends a welcome to incumbent AGC president George C. Koss, of Koss Construction Co., Des Moines, Iowa, center, and the man nominated as his successor, Frank J. Rooney, of Frank J. Rooney, Inc., Miami, Fla. Election of officers will be held at the AGC annual meeting in New York in February.

AGC officials meeting in Minneapolis hear construction forecast . . .

Work Pouring In, Costs Rising, Bidding Rough

For the next six months, the construction boom will continue in high gear, competition for jobs will continue to be tough, steel and cement deliveries will be slow and materials prices probably will go up.

That's the report given to the governing and advisory boards of the Associated General Contractors at a midyear executive meeting in Minneapolis last week.

For the most part, a spirit of confidence and optimism prevailed at the meetings, sparked by the AGC's midyear report on the construction outlook. After checking with AGC's 84 directors and 124 chapters, H. E. Foreman, managing director, told association officials:

"Both immediate and long-range prospects are for a continued volume of construction at record levels. With new construction volume for the first eight months of this year running 13% ahead of the same period last year, new construction for 1955 is expected to reach $42 billion . . . $4 billion above last year. And, when you include maintenance and repair, you get a total volume of construction activity for 1955 of $58 billion."

• **Tough competition**—The outlook for construction volume was encouraging for the next half year. The consensus was that there would be "a steady surge toward a new, record-breaking volume of construction, with exceedingly intense competition. . . ."

"Cocktail caucuses" at the meeting made it clear that the tough bidding competition which has prevailed for more than a year is here to stay for a while longer.

In addition to the bid competition and the prospect of higher materials prices before February, the AGC spotted some other clouds on the horizon. Officials at the session cast an anxious eye on some thorny legislative proposals affecting general contractors' relations with labor and subcontractors.

• **Bid-shopping**—So-called "bid-shopping" legislation is probably the prime problem of all general contractors today. Adoption of Senate Bill 1644 on the closing day of the last session is viewed by the AGC as an opening wedge in a concerted drive to destroy the single-contract method of construction.

The bill would require a general contractor to list the names of his proposed mechanical specialty subcontractors in his bids on federal public works contracts.

• **Oppose Davis-Bacon**—AGC's Labor Committee wants no part of the Davis-Bacon Act in any forthcoming highway legislation. It intends to keep a wary eye on any developments and to resist adoption of any direct amendments to the act affecting wages, working conditions, welfare payments and other provisions that would, in effect, permit the federal government to change wage requirements after a contract has been awarded.

In another resolution, AGC reinforced its stand of being opposed to TVA—or any other government agency—negotiating labor agreements for construction. The resolution also brought up a long-time sore point—TVA should abide by agreements negotiated by the proper bargaining agencies (i.e., contractors' groups) in the Tennessee Valley area.

• **Accident prevention**—Safety was also a hot topic at the meetings.

AGC officials feel dividends are being reaped already because of the new drive for safety, particularly in better public relations, improved workmen's morale and reduced rates for workmen's compensation in some areas.

• **Engineers wanted**—If there was ever a doubt of the importance of civil engineers to contractors, it was dispelled in an AGC education committee report. Based on a current survey of AGC members on their future needs for civil engineers, the report showed: Roughly 800 AGC member firms reported they now employ a total of 4,000 civil engineers. They must increase this number to 5,660 within the next three years and build it up to 6,500 by 1960.

Water Supply

N. J. legislature approves $100-million bond issue to go on November ballot

New Jersey residents will vote at the November 8 general election on a $100-million state bond issue to finance a major expansion of the state's water supply.

After almost two years of disagreement, the legislature passed a bill authorizing expenditure of $100 million for huge new reservoirs in both north and south Jersey—if the voters approve. Gov. Robert Meyner signed the bill last week.

The new law earmarks $60 million for construction of a reservoir at Chimney Rock in Somerset County, to supply more water for north Jersey residents, and $40 million for development of a water supply on the Wharton Tract in south Jersey's Burlington, Camden and Atlantic Counties.

A companion measure sets up a State Water Development Board in the Department of Conservation and Economic Development to supervise the entire water program.

• **Planned in stages**—The $60 million earmarked for the Chimney Rock project would pay for only the first stage of development. Engineers estimated this would make 70 mgd available by 1960 from the Delaware and Raritan Rivers.

A second stage could be completed over an additional five-year period. This stage would boost the total cost of the reservoir and transmission lines to an estimated $103 million and would provide an estimated 200 mgd. However, this 200 mgd figure for Chimney Rock has been questioned by Meyner and Joseph E. McLean, State Commissioner of Conservation and Development. They contend that Chimney Rock would supply a maximum of 150 mgd.

The water supply question has been a hot political issue in New Jersey for more than two years. While there has been almost complete unanimity on the need for new water supplies, there have been wide differences of opinion on how the supplies should be developed.

Originally, Gov. Meyner's Democratic administration favored construction of a reservoir at Round Valley in Hunterdon County to provide the new water supply needed for north Jersey. This plan was opposed by residents of Republican-controlled Hunterdon County as well as sportsmen and property owners in the north Jersey lake region.

• **Round Valley abandoned**—In July, the Republican-controlled legislature came up with a report by a New York engineering firm, Tippetts-Abbett-McCarthy-Stratton, which recommended scrapping plans for the Round Valley project and building a reservoir at Chimney Rock in Somerset County instead.

After public hearings on the matter, the governor reluctantly agreed to the Chimney Rock plan, referring to it as "the best plan I can get from the legislature." But the governor added: "Responsibility for the terms of this legislation, however, must rest with the legislature."

As the political smoke began to clear away, one thing became evident; if the voters approve the November bond issue, construction could get under way in the Spring and the first stage of the project might be completed as early as 1959.

Aid to Navigation

Design under way on new Tennessee River lock

Design work for proposed navigation improvements at Wilson Dam in north Alabama is under way as a result of a $300,000 appropriation made by Congress at its last session.

Plans call for a new Tennessee River lock to supplement present facilities, which are more than 30 years old and considered too obsolete to handle today's barge traffic.

The new lock will have an inside chamber that is 110 ft wide and 600 ft long. It will feature a maximum lift of 100 ft, making it the highest single lift lock in the world.

Under the proposed plan, the downstream approach channel to the new lock will be at a lower level than the existing Florence Canal and therefore will bypass Lock and Dam No. 1. The channel, which will be dredged to provide a minimum depth of 11 ft, will follow the alignment of the present canal from Sweetwater Creek to the new proposed lock. A third lock chamber would be added downstream from the existing double lock at Wilson Dam to provide for the lift now required at Lock and Dam No. 1.

Improvement plans also call for the present highway bridge to be replaced by a new high-level span.

Traffic through Wilson Locks has risen from 452,000 tons in 1945 to more than 2,100,000 tons in 1954. Each tow now requires more than 5¼ hours to negotiate the three locks and approaches. The same tows would pass through the proposed new lock in 50 minutes.

Change in Plans

New design for California power project expected to cut cost, boost capacity

Pacific Gas & Electric Co. is seeking approval of the Federal Power Commission and the California Public Utility Commission on design changes in its Kings River hydroelectric project.

The new design for the central California project is expected to trim $900,000 from the original cost estimate of $80 million. It also will develop an additional 2,000 kw to boost the total generating capacity to 276,000 kw.

Under the new plans Haas powerhouse will be built 500 ft underground, in a chamber carved out of the mountainside. This is considered a more economic way to develop head than the proposed $13,500-kw Wishon powerhouse. Wishon penstock, powerplant, afterbay dam and transmission line have been dropped from the project.

At two powerplants—Haas and Balch—two large vertical shaft multiple-jet impulse turbines have been substituted for three smaller horizontal shaft double-overhung impulse turbines.

The system will include:

• Helms Dam, a rockfill structure to be located on Helms Creek, a tributary of the north fork of Kings River. It will be 290 ft high, 840 ft long, with crest elevation of 8,174 ft. The dam will develop 102,000 acre ft of storage on Helms Creek.

• Wishon Dam, a rockfill structure on the north fork of Kings River. It will be 250 ft high above the streambed, 3,350 ft long at the crest, with crest elevation of 6,550 ft. Water will be released by streamflow into the 128,000-acre-ft Wishon Reservoir.

• Haas power plant, developing 128,000 kw from two generators. A 13-ft dia tunnel, 33,000 ft long, will deliver water to the plant. A 2,000-ft tunnel will carry water from the plant to the Balch diversion reservoir.

• Balch powerhouse, diversion dam and afterbay dam. Two 54,000 kva generators will be added to this 28-year-old plant, boosting its capacity from 34,500 kw to 126,000 kw. Height of the diversion dam will be raised 44 ft and the afterbay dam will be elevated 32 ft.

• Kings River power plant, with a capacity of 42,000 kw. Water will be delivered from Balch afterbay dam to this plant through a 13-ft dia, 20,000-ft-long tunnel and a 1,700-ft penstock.

Work already has started on Wishon Dam as a result of a limited certificate issued by the State Public Utility Commission (ENR May 5, p. 25).

Urban Links for U. S. Road Plan

Bureau of Public Roads approves 2,300 mi of highways in 102 urban areas to complete designation of interstate system

With broad strokes that show the general location of interstate highway routes through and around 102 urban centers, the Bureau of Public Roads last week completed overall designation of the 40,000-mi national system of interstate highways Congress authorized in 1944.

The new urban links, spurs and bypasses add 2,300 mi to the 37,700 mi of cross-country route locations designated in 1947. Those earlier routes were selected in cooperative action by the states to form a network connecting the principal cities and industrial areas of the nation. Last week's additions fill in the gaps purposely left open at that time to permit later decision on the difficult questions of urban connections and extensions needed to round out the system.

As has been true all along for the earlier interurban locations, the new approvals fix only the general routes of the interstate system in the metropolitan and urban areas. The important transportation lines—or corridors of traffic—are established, but they are not tied to any existing streets or roads. Final locations will be determined as the states go ahead with projects for improvement of interstate routes in their heavily populated areas.

• Locations eligible for aid—Urban locations approved by BPR were recommended by the state highway departments. Some states had hesitated about locating the urban traffic channels for their interstate roads, even in a general way, but the imminence of a national highway program made some kind of decision necessary.

Newly designated locations, of course, are eligible for 60% federal interstate aid under the 1954 Highway Act. They also will be in line for any increase in federal assistance that may be enacted in new legislation.

No change in federal highway policy is indicated or implied in the new approvals. Toll bridges and tunnels are included in some of the urban routes recommended by the states and approved by BPR. In some places, too, the locations appear to include portions of toll roads. However, no federal funds can be used to help pay the cost of toll roads, though federal aid can be applied to toll-free highways connecting with toll bridges and tunnels.

What the 2,300 mi of interstate urban sections will cost is anybody's guess. State estimates of the cost of building the previously designated 37,700 mi to 1975 standards total $23 billion, as noted in the BPR report to Congress on highway needs. Presumably, the states included the estimated cost of interstate urban connections in their $49-billion total figure for all other federal-aid roads.

• Many expensive projects involved—A good part of the newly designated mileage would be in the most expensive brackets, near the high average of $10 million a mile for highways of more than six lanes in urban areas. But a large mileage for circumferential and spur routes probably would fall in a semi-rural classification where costs could be kept down if right-of-way is acquired promptly. Some portions of these roads, as well as locations through smaller cities, might be in four-lane category, estimated to cost an average of $450,000 per rural mile and $1.6 million per urban mile.

To start one of the urban connections, a state highway department will first make a project proposal to BPR covering the link, bypass or spur. After getting approval of this preliminary proposal, the state will work up and submit project items for construction of sections of the route.

Before BPR approves any of these proposals, it is likely to ask for origin and destination studies within the metropolitan area. These studies will indicate the "desire lines" (the routes that traffic wants to use), which then have to be reconciled with the hard facts of engineering and economic feasibility.

At this point, there will be a field inspection of possible locations, backed up with survey notes, maps and preliminary plans. Finally, after selection of the location, the highway department will make formal submission of plans, estimates and surveys for the project it desires to build. When BPR gives written approval of the submitted data, the state highway department can issue a call for bids and award a construction contract to the successful bidders. Formal approval by BPR obligates federal-aid funds to the extent of authorized federal participation in the project.

New Jersey Pushes Expressway Plans

New Jersey's Highway Department has lined up 14 highway improvement projects for the current fiscal year costing $34.1 million. In addition, it is looking ahead to the future by pushing plans for resurfacing Pulaski Skyway and building a 10-lane expressway link with the George Washington Bridge.

The future highway plans have a good start. Three possible alignments for the proposed expressway have been submitted to the U. S. Bureau of Public Roads for approval. The 18-mi superhighway will run from Paterson to the western end of the Hudson span. Although the route has not been made public, it is known that plans call for four vehicular lanes in each direction and two center lanes for rapid transit by rail or bus.

The expressway already has caused complications:

New Jersey's Gov. Robert B. Meyner has asked the Port of New York Authority to slow down on plans for the double-decking of the George Washington Bridge (ENR Jan. 20, p. 28). The bridge project reportedly will have to be deferred until New Jersey can handle the increased traffic by completing the expressway connection.

The New Jersey road department's second big future project—adding a coarse "sandpaper" finish to Pulaski Skyway—is planned as a safety measure.

During the past quarter century, the surface of the elevated highway between Newark and Jersey City has been worn smooth. The Highway Department, which has conducted tests to develop a special rough surface for the roadway, has finally arrived at a formula of hot tar, stone chips, more hot tar, and a sprinkling of grits.

A second safety step for the Skyway will be installation of a concrete-and-steel barrier to separate opposing traffic lanes. Specifications call for a 16-in.-high barrier that will provide two separated lanes of traffic in each direction.

Aside from the $34.1 million budgeted for various road improvement projects this year, $5.5 million has been earmarked for right-of-way acquisitions prior to public announcement of new route locations. By thus trying to avoid the usual real estate speculation that attends new route plans, state highway officials are hopeful of saving from 30% to 50% of the total cost of some of their future projects.

A Monster Moves
Over 3,100 Miles of Water

The world's largest dredge—The Western Chief—is now at work at Kings Bay, Ga., after completing the longest and probably the most difficult voyage ever attempted by an inland water dredge.

The Western Chief, with no motive power of its own, was tugged and pushed from Yankton, S. D., where it placed a substantial portion of the fill for Gavins Point Dam, to Kings Bay, Ga., for a harbor deepening job. Much of trip was uneventful; but the first leg of the journey, from Yankton, S. D., to Omaha, Neb., was a nightmare to the captain of the Chief and his crew.

When its work was completed at Yankton, Western Contracting Co., of Sioux City, Iowa, owner of the Chief, decided to take the dredge to Georgia by water, although the dredge is so constructed that it can be broken down into sections and transported on 90 flat cars.

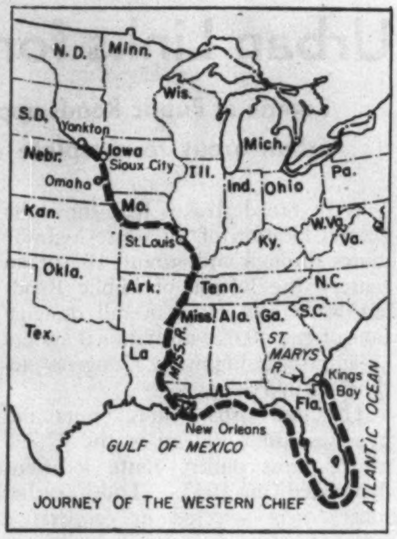
The decision to use the water route meant taking the Western Chief down the Missouri River to St. Louis, down the Mississippi to New Orleans, across the Gulf of Mexico, around the tip of Florida and up the Atlantic coast. Total mileage involved: 3,152 mi. Distances: Yankton to Omaha, 208; Omaha to New Orleans, 1,802; open water, 1,100.

Toughest leg of the trip was from Yankton to Omaha. The problem was too much boat and not enough river. From Yankton to Sioux City, the river is completely in a natural state, interlaced with sand bars and without channel works. Over much of the 128 mi from Sioux City to Omaha, the river has reverted to its wild state. Against this was arrayed the size of the boat itself. The Western Chief is 170 by 46 ft. The 1,500-ton, 11,000 H.P. boat has a draft of nine feet.

Worst trouble came immediately below Yankton at the mouth of the James River, the mouth of the Vermillion and at Elk Point, S. D. In this reach, it took the pontoon-supported Western Chief 34 days to go 35 mi. One stretch of 15 mi took 14 days. As the awkward monster waddled over its watery obstacle course, a captain with 33 years experience exhibited his resourcefulness, winching the craft over shallow spots, unlimbering the giant cutterhead so the Western Chief could chew its way through sand bars, freeing the dredge again and again as the river trapped it.

The company originally scheduled five weeks for the entire 3,152 mi journey to Kings Bay. But the river wrecked the timetable. It took eight weeks and five days to make the trip from Yankton to Omaha, a distance of 208 mi.

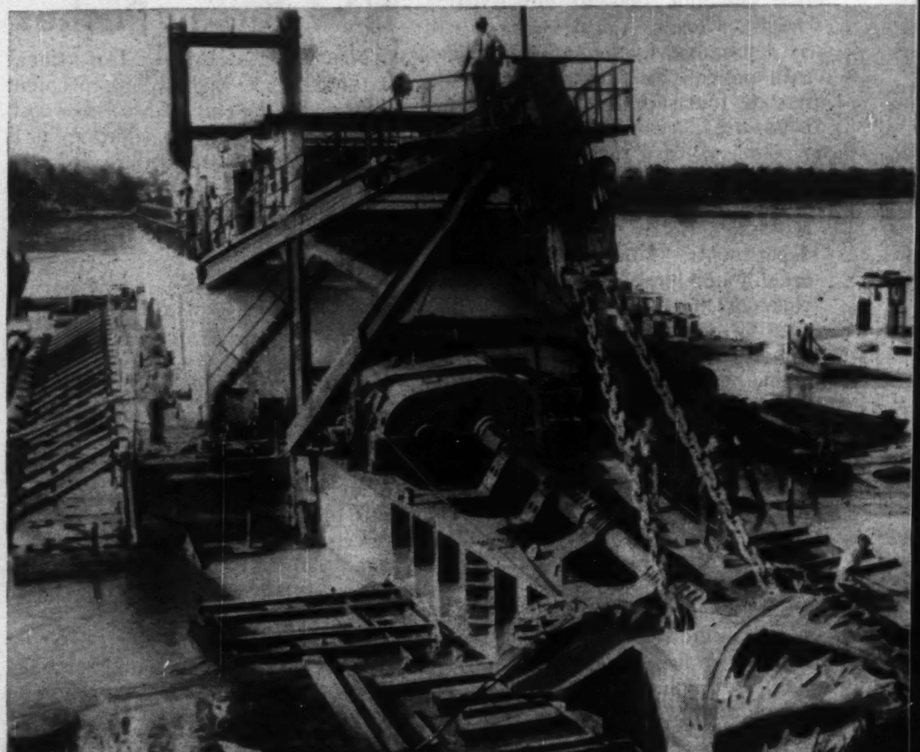
At Omaha, start of the deeper water, came the first of a series of modifications. Because of the pontoons at the stern and the cradling of the spoil pipe outlet, the towboats couldn't get close enough to engage their towing knees to push the craft downstream. So, the Western Chief got a bustle. A section of 30-in. dredging pipe was set out over the stern to give the towboats a butting surface. At St. Louis, there were more changes, as pontoons (not needed for the deeper Mississippi) were cut off. And, at New Orleans, where the Western Chief went into drydock to prepare for the salt water leg of the trip, sealer strips were welded at the seams to prevent salt water corrosion, cutterhead and spuds were removed, all openings were sealed, and a breakwater, made up of 4 by 10s, was built across the back of the vessel.



JOURNEY OF THE WESTERN CHIEF

Pontoons, barges help on tough stretch of river . . .

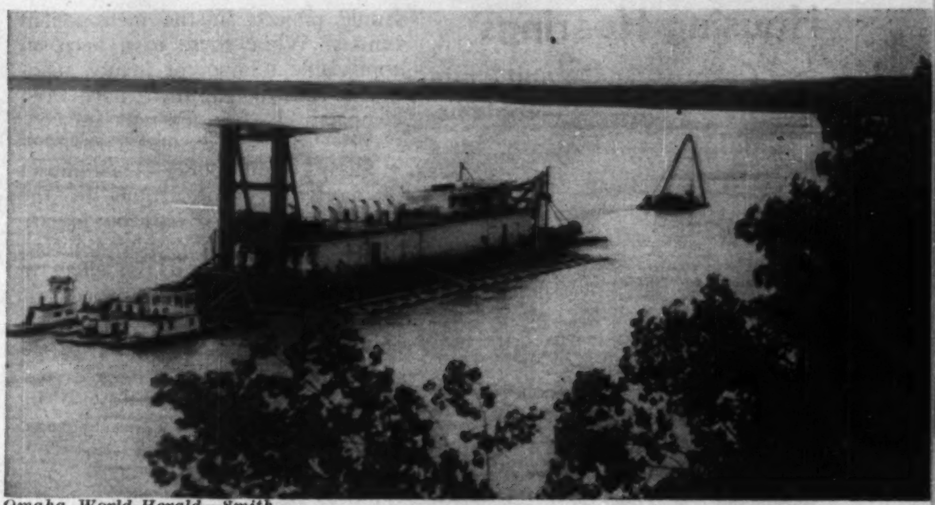
With its 140-ton cutterhead assembly cradled on four barges and with 62 pontoons attached to the hull to reduce its normal 9-ft draft to 5½ ft, the Western Chief slips into the Port of Omaha, completing the first—and most difficult—leg of the long trip.



Omaha World-Herald—Breeling

. . . A winch helps Western Chief over shallow spots

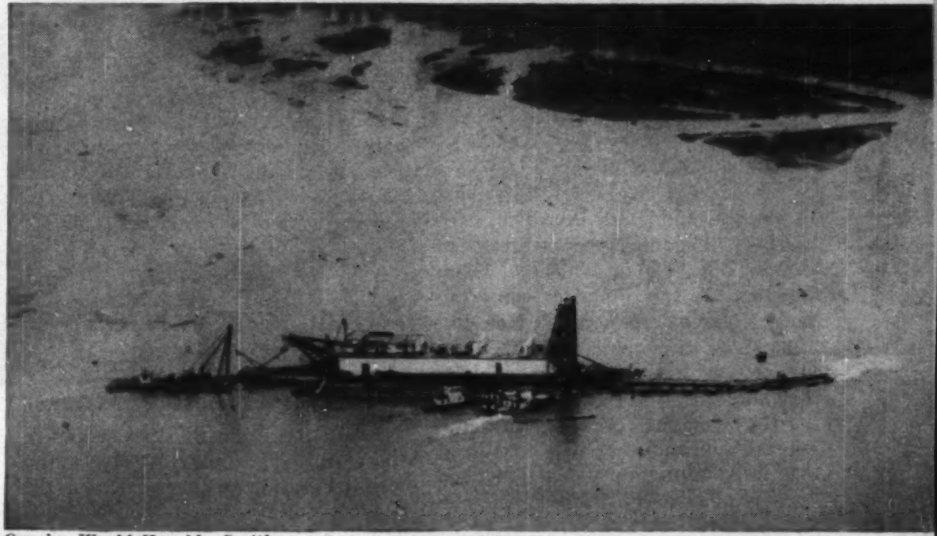
The massive dredge was plagued with shallow water and frequent groundings. One of the worst spots was this one at Vermillion, S. D., where the dredge was winched while four tugs pushed. The longest distance covered without grounding in the first stretch was one-half mile. Plans called for the dredge to be tied up at night—when things were going smoothly. But, when the Chief was grounded, the 32-man crew worked around the clock, dredging or pulling free. For much of the eight weeks, the crew of the Western Chief had a lot of work—and little sleep.



Omaha World-Herald—Smith

. . . But the Chief helps itself through sand bars

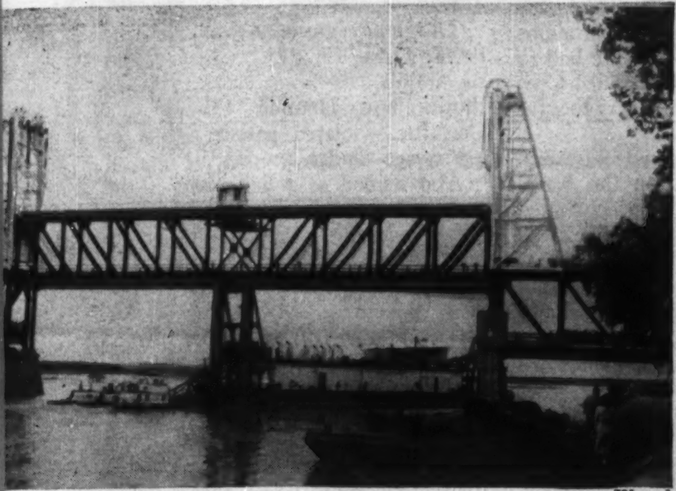
When a sand bar was really tough, the Western Chief's cutterhead was unlimbered and the dredge chewed its own channel. But this was frustrating because the sand that had been cut loose quickly reformed ahead of the boat. In effect, the sand bar was travelling just ahead of the craft and as much as 1,000 additional feet of dredging had to be carried out in some places. To use the cutterhead, the Chief required fuel. But the dredge had no tanker barges. Capt. H. H. Coleman's solution: Two pontoons were cut loose and towed ashore as tiny tankers. Two tank trucks of fuel oil were used a day when the cutterhead was in operation.



Omaha World-Herald—Smith

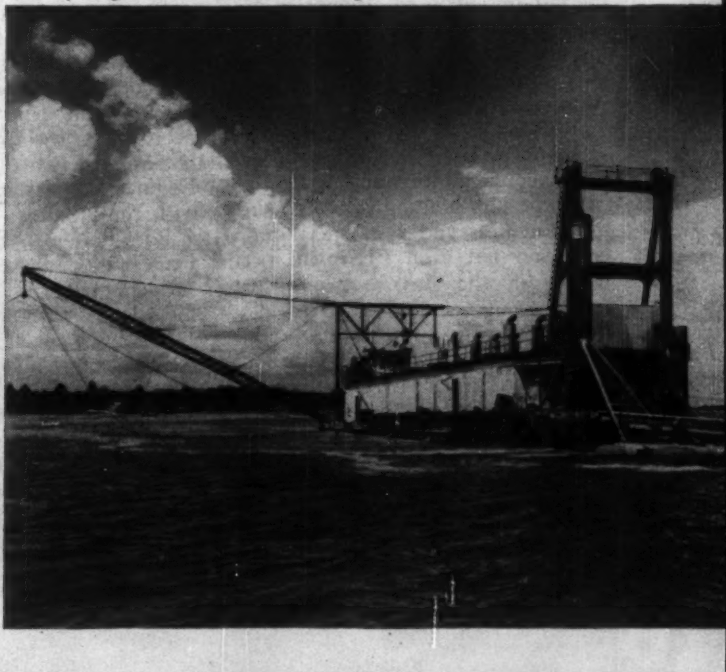
. . . Another close scrape for the Chief

A hint of the trouble to come turned up at the very start of the trip when the dredge was eased through the Yankton drawbridge by anchor lines. The boat cleared—but it scraped the paint off the rivets of its spud framework assembly, as it went through.



Vlasak

WORKING AT KINGS BAY, GA., the Western Chief will dredge approximately 10,000,000 cu yd of material from the St. Mary's River and Cumberland Sound to provide water access to an Army Engineers' ammunition loading terminal.



Housing Hearings

Congressional unit airs slum-clearance problems, defects in housing laws

A House banking subcommittee was scheduled to open hearings in New York this week as the first stop on a nation-wide tour to find out why slum clearance and public housing projects are not being built as fast as Congress intended when it passed the new housing laws.

Specifically, the subcommittee, headed by Rep. Albert Rains (D.-Ala.), wants to find out why loan guarantees aren't being given to private builders for housing in slum-cleared areas, what happens to the families moved out of a slum area by a clearance program, and what damage—if any—is being done by the Administration's tightening of mortgage credit.

When the House banking subcommittee concludes its New York hearings, it will move on to Philadelphia for two days, Oct. 12 and 13. Then an interim report may be issued, with hearings scheduled to be resumed around Nov. 10 in Chicago. From Chicago, the subcommittee will go to San Francisco, Los Angeles, New Orleans and Birmingham, military housing projects will be inspected along the route.

After Congress convenes in January, the subcommittee will hold hearings in Washington at which federal housing officials will testify.

• **Loan insurance difficult**—The subcommittee will direct special attention to the operation of Sec. 220 of the Housing Act of 1954. This section was added as an amendment at the last session in an attempt to provide loan guarantees on housing built in slum-cleared areas. The amendment authorizes the Federal Housing Administration to insure loans on such housing.

But it has been difficult to get loan insurance on projects of this type because the new housing is located close to slum areas and commercial property, and not even FHA had been willing in the past to insure such loans. Congress thought that legislation authorizing FHA to make these loan guarantees would break the bottleneck, but to date FHA has failed to issue a single commitment.

Through the public hearings, the subcommittee hopes to find some way of making Sec. 220 work.

Another housing problem that will be studied is the failure of private builders to construct low-rental, multi-family projects in the metropolitan centers. While there have been an appreciable number of luxury apartments constructed, there have been comparatively few low-rent projects.

• **Study credit policy**—The impact of mortgage credit actions by the Administration also will be investigated by the House subcommittee, which wants to assess the effect of actions requiring a small downpayment (2%) on VA-insured loans and also shortening the maturity period on mortgages.

Other credit problems that are expected to come up at the hearings: action by the Home Loan Bank Board urging savings and loan associations to make fewer housing loans, and raising of the rediscount rate by the Federal Reserve Board.

Meanwhile, a Senate subcommittee plans to conduct staff studies this fall on mortgage credit, underwriting procedures, and housing for the aged.

The House Veterans Committee will continue its investigation of housing problems affecting veterans. This committee has just completed hearings in California on alleged abuses by builders.

Adm. Perry Dies

BuDocks Chief Had Key Role in Creating Seabees

Rear Adm. John R. Perry

Rear Adm. John R. Perry, Chief of the Bureau of Yards and Docks and manpower director in creation of the Seabees during World War II, died Sept. 25.

As BuDocks' director of admistration and personnel during the war, Adm. Perry built up the newly-created Naval Construction Battalions to a force of 250,000 men under the leadership of Adm. Ben Moreell, wartime Chief of the Bureau. Adm. Perry had top responsibility for enlisting, training, organizing, equipping and dispatching the construction battalions overseas. At the same time, he had to obtain more than 9,000 qualified Civil Engineer Corps reserve officers to serve with these units.

Born in Waco, Tex., in 1899, Adm. Perry was graduated from the Naval Academy in 1923. He later continued his engineering training in the postgraduate school at Annapolis and at Rensselaer Polytechnic Institute, where he received degrees as Bachelor and Master of Civil Engineering.

Adm. Perry had served in the Civil Engineer Corps of the Navy since 1927. After organizing the Seabees, he became—in August 1944—officer-in-charge for the Hawaiian area of the Naval construction brigades with the service force of the Pacific Fleet. Early in 1945 he took command of 35,000 Seabees in the Southwest Pacific, with headquarters in the Philippines. He returned at the end of that year to become public works officer at the Naval Academy.

In 1948, Adm. Perry was recalled to BuDocks headquarters as Assistant Chief of Operations and moved next to the Naval Construction Battalion Center, Port Hueneme, in 1951. In December 1952, he was promoted to Rear Admiral, and a few months later became director of the Pacific and Alaskan Divisions for BuDocks. President Eisenhower nominated him to be Chief of the Bureau and head of the Civil Engineer Corps in 1953.

Patent Suit Filed Against Sewer Authority, Contractor

A patent infringement suit has been filed in federal district court against the Buffalo, N. Y., Sewer Authority and a local contractor.

The action was brought by the Pacific Flush Tank Co., Chicago, and six individuals who claim the authority and Henrich Construction Co., Inc., violated patent rights for a "sewage sludge process."

Also named as a defendant is the Ralph B. Carter Co., Hackensack, N. J., which the complaint charges induced the authority and the Henrich firm to infringe patent rights.

A spokesman for the Sewer Authority said the patent rights involve the recirculation system used on sludge tanks at the Bird Island sewage treatment plant. Pacific Flush Tank Co. was described in the court action as owner of exclusive patent rights for the invention.

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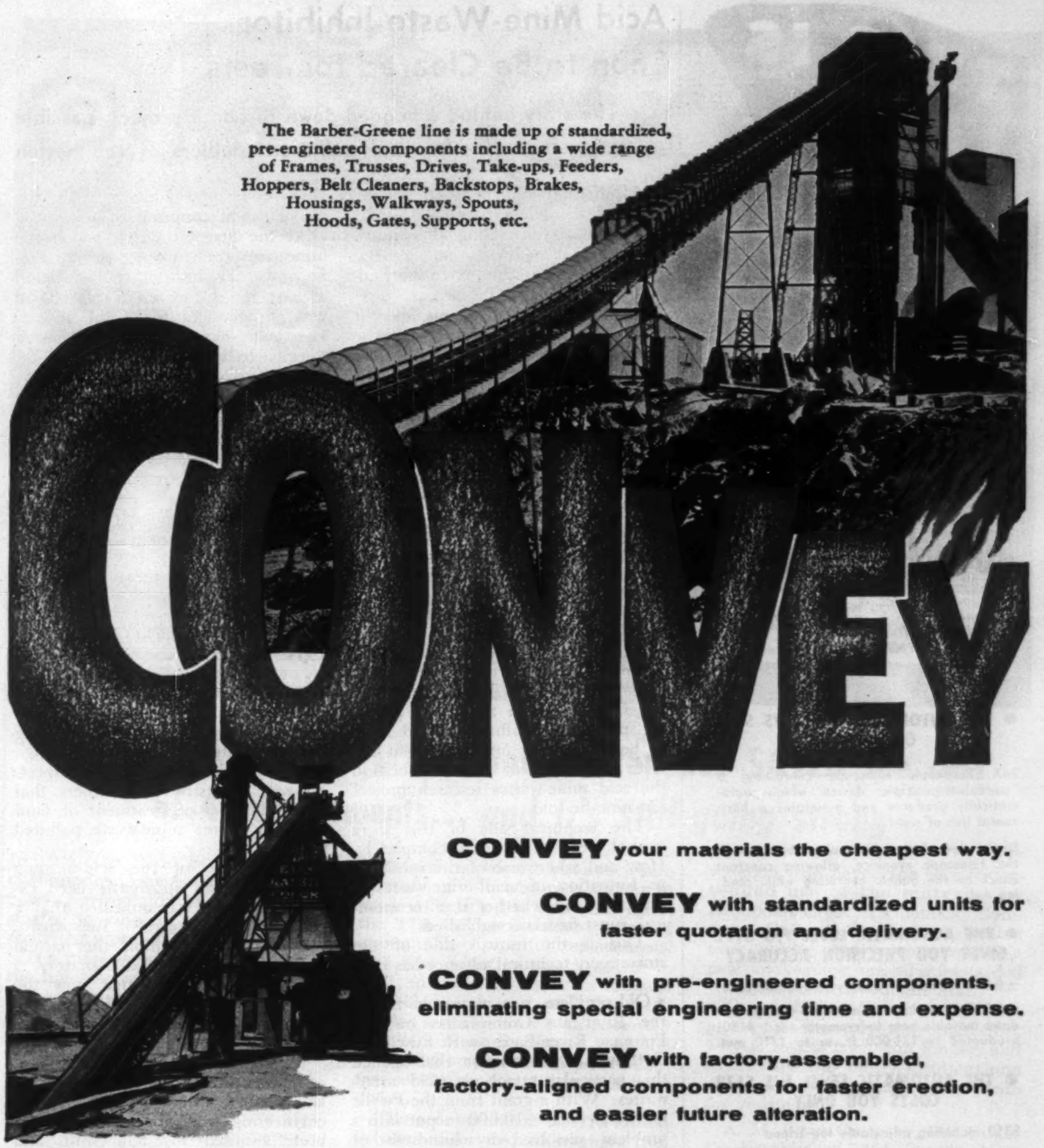

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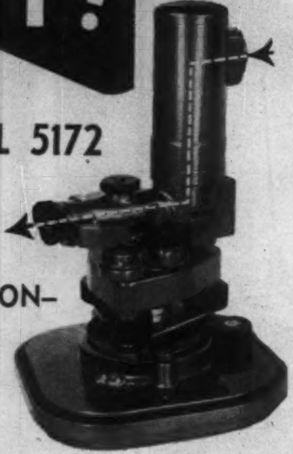

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Acid Mine-Waste Inhibitor Soon to Be Cleared for Tests

The story behind a bogged-down research project, possible answer to No. 1 water pollution problem of the nation

A situation fraught with all the personalities and intrigues of a fictional plot is unraveling after nearly two years of confusion and frustration over a significant scientific finding.

Perplexities that had enveloped it finally have been dispersed from the seemingly simple but important laboratory finding that an inhibitor might prevent natural formation of acid in active and abandoned coal mines.

This finding was heralded two years ago as possible answer to the vexing water pollution problem of acid seepage (ENR Feb. 12, 1953, p 24) and soon thereafter was reported as going to the field for tests. Actually, however, all that started was an interlude of unpublicized troubles for the hopeful project that prevented complete field tests of what was expected by some to answer the last unsolved stream pollution problem.

Now at last, with legal papers fixing patent rights reportedly moving slowly but surely through the patent office, the promising inhibitor should seem to be able to go uninhibited to the tests. Essentials of the story behind the acid mine-wastes research project can now be told.

The technical side of this story cannot yet be reported completely. How and where use of the inhibitor to formation of acid mine-wastes is practical—and whether it is economical—must first be established.

This is the human side of the story; every technical advance has one.

• Old problem, new approach—It was the Interstate Commission on the Potomac River Basin, with Edwin R. Cotton then its director, that opened this particular attack on acid mine-wastes. With a grant from the Public Health Service—$10,000 to put into a problem unsolved by hundreds of thousands already spent—a delegation from the Potomac River Commission went to talk it over at Johns Hopkins University in Baltimore.

The university's high-powered sanitary engineering staff (Professors Wolman, Renn and Geyer) agreed to undertake the research and indicated they would seek a new approach.

Their approach was indeed different, and it turned out to be direct. They summoned to the task the university's Professor Walter A. Patrick, physical chemist of note who had for years concerned himself with the mechanics of corrosion.

At the first session in which the mine-acid problem was posed to Professor Patrick, he took chalk in hand and sketched out on a blackboard what he thought to be the answer. His theory had his years of corrosion research back of it.

To investigate Patrick's theory, a fellowship then was awarded (with the Potomac Commission's grant from PHS) to a young, active-minded chemical engineering student, Floyd W. McCollum. Since this was a fellowship, and not contract research, the university intended that findings be free of restriction on publication.

McCollum's laboratory work soon confirmed Patrick's theory. But from then on, nothing simple developed.

• Into the limelight—In January, 1953, newspaper accounts told that Johns Hopkins scientists had discovered an inhibitor to the reaction of air, water and pyrites in coal mines that forms the sulphuric acid seeping out to pollute streams. Sanitary engineers were electrified at the prospect. So were industries and others that suffer the cost of treatment of (and corrosion from) mine-waste polluted waters.

The nature of the acid-forming mechanism had apparently been exposed. And it was indicated that a choice of reasonably inexpensive chemicals could inhibit the natural reaction—at least in the laboratory.

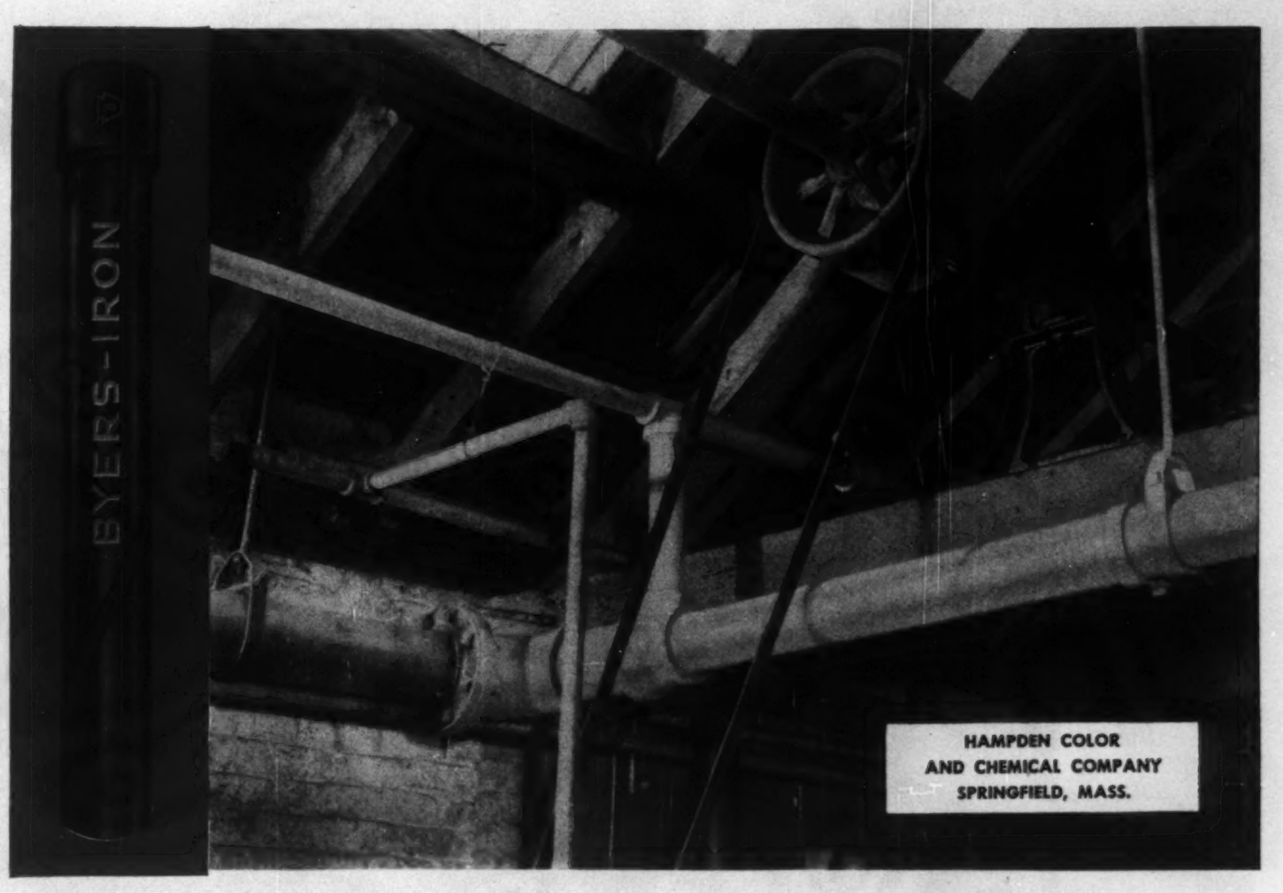
It was announced that now the finding would go to the field for the real test of Professor Patrick's ingenuity.

At about this point, McCollum, carried away with the potential of his lab findings, threw up the chemical engineering work for which he had been awarded his fellowship, and went on the payroll of the Potomac River Commission to run investigations in a mine of Pittsburgh Consolidation Coal Company near Fairmount, W. Va.

• Question of ownership—Dr. Patrick, who had provided the answer, and McCollum whose lab work had sustained it, had definite ideas on who owned their finding.

Having had experience in these matters, Dr. Patrick had applied for

(Continued on page 32)



This WROUGHT IRON PIPE installation has SAVED the cost of 4 replacements... *and it's still going strong*

In 1941, the Plant Superintendent of Hampden Color & Chemical Company, Springfield, Massachusetts, started looking for an answer to a recurring piping failure problem.

His maintenance records charted the life-span of the piping material he had been using for the dry-sprinkler-pipe system at about three years. There was no question about the severe corrosive conditions that constantly threatened the service. The system, located on the ceiling of the dye room, collected dye dust which contained a large percentage of sodium chloride. Condensation created by the operation in the dye room kept the pipes wet. The result was a weak "salt bath" which caused outside corrosion.

After careful investigation of performance records in services where corrosive conditions were similar to those affecting his sprinkler-lines, the Plant Superintendent selected wrought iron pipe for replacement. The first quantity was installed in 1941, followed by a greater tonnage in 1943.

The installation was recently checked. Records reveal that the wrought iron pipe has given trouble-free service, and is still in good condition.

The economies are clear. Figured in years of service, the wrought iron pipe has already saved the cost of 4 to 5 replacements. Added to this are the benefits of uninterrupted operation that means greater plant efficiency.

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Griffin pumps used to install "Texas

Six heavy-duty, large-volume pressure pumps performed dependably in caisson jetting for first ocean radar platform. Caisson legs were sunk 45 ft. below ocean bottom by the contractors—Raymond Concrete Pile Co. and DeLong Corp., a joint venture.

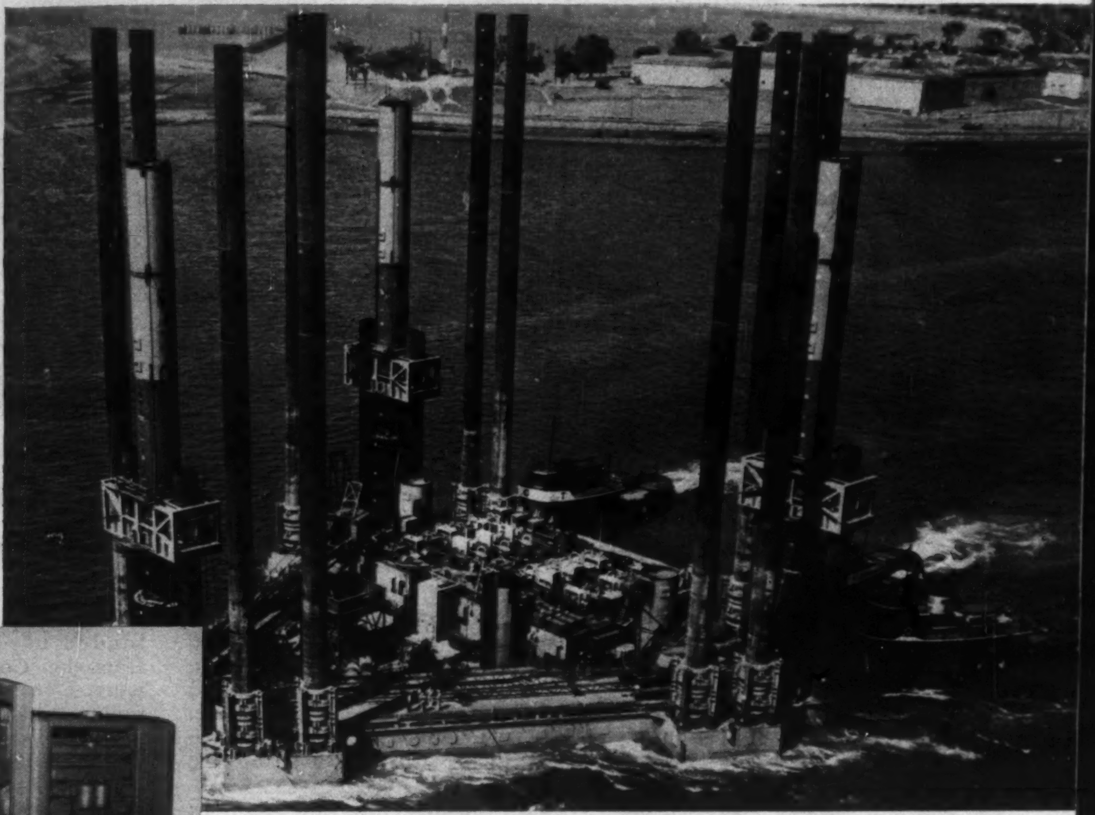
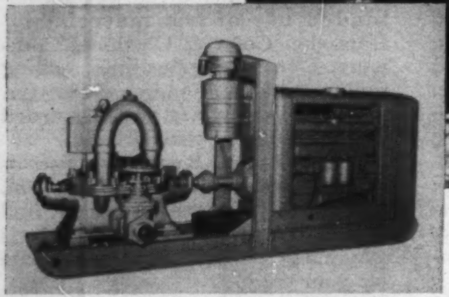


Photo courtesy RAYMOND-DELONG

Photo shows pumps mounted on radar station as the 6,000-ton steel structure is towed down Boston Harbor to Georges Banks, east of Cape Cod. Here, its 3 legs were dropped 56 ft. to the ocean floor and then sunk 45 ft. deeper. Air jacks raised the platform 81 ft. above water level.

1200 G.P.M., 251 P.S.I.



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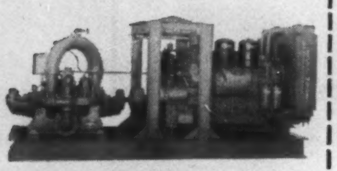
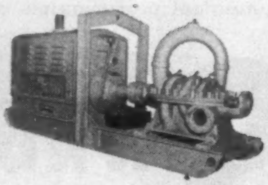
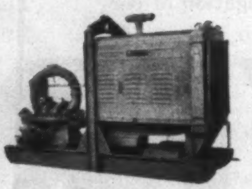


1400 G.P.M., 303 P.S.I.



650 G.P.M., 260 P.S.I.

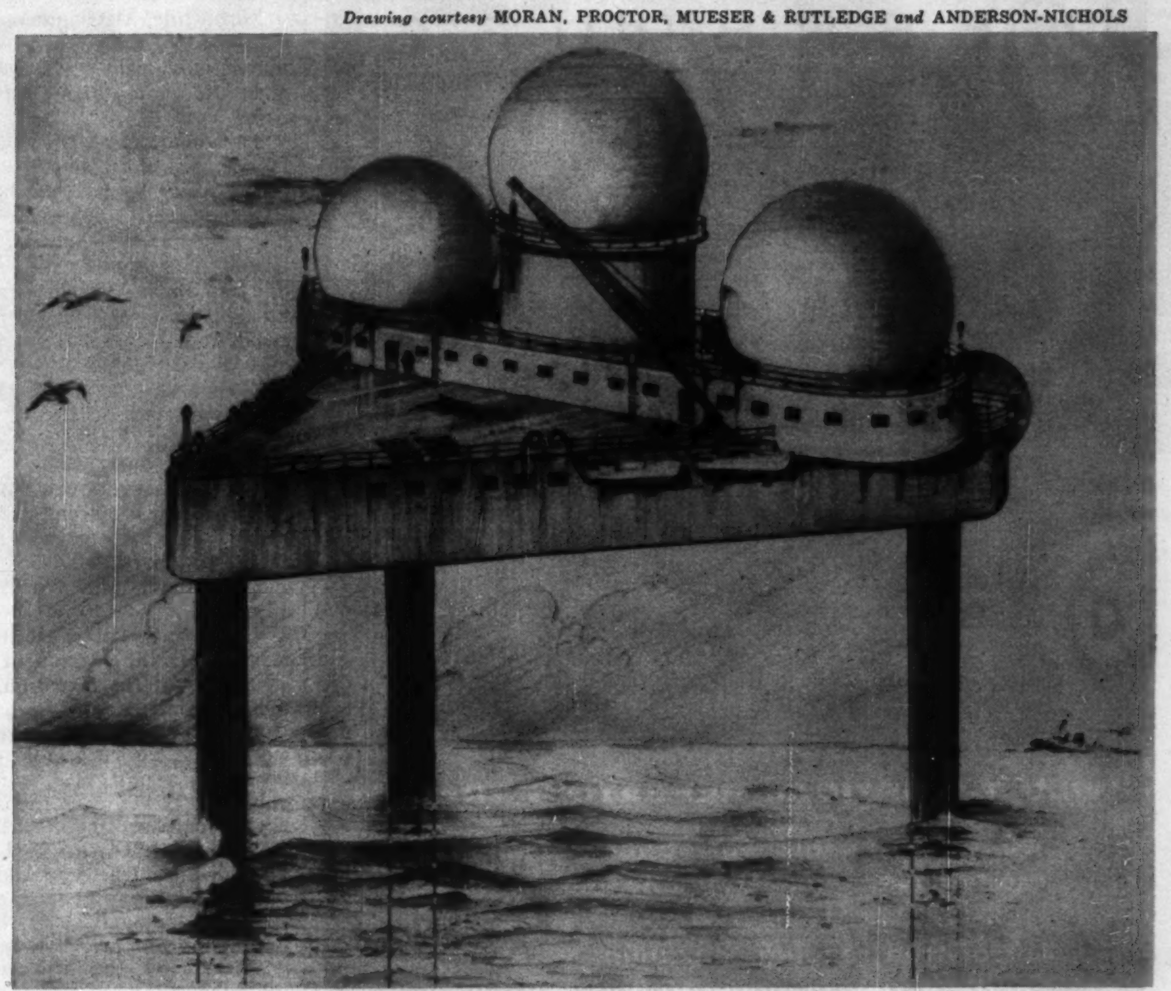


650 G.P.M., 205 P.S.I.

400 G.P.M., 175 P.S.I.

Tower" in complex jetting operation

Drawing courtesy MORAN, PROCTOR, MUESER & RUTLEDGE *and* ANDERSON-NICHOLS



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a patent. And he generously had assigned half interest in the patent application to McCollum. (Patent law requires that individual inventors make this application; it was made in accordance with wishes of the Potomac River Commission.)

Meanwhile, McCollum made some field tests for the commission but reported only orally. The commission and McCollum finally parted company.

The Public Health Service held to the established position that any patent resulting from research financed by public funds must be dedicated to free public use. Dr. Patrick had written his application broadly, to include much of his personal findings on the general mechanics of corrosion, far afield from the special application to mine wastes. He was willing to license anybody to use the portion of his findings applicable to stream pollution abatement.

• **With settlement, new hope**—Now, at last, accord has been reached and a patent is due to be issued.

• The patent will belong to Patrick and McCollum, and it does apply to all pyrites.

• The U. S. Public Health Service may employ, for government use only, all aspects of the invention, without right to sublicense.

• The Potomac River Commission will hold exclusive license to use the invention against acid mine wastes only, with power to sublicense for this limited purpose, free of charge.

All this adds up to final, legal establishment of who owns and who can use the laboratory findings of Patrick and McCollum. It clears the way at last for the vital field tests to establish practicality of the acid mine-waste inhibitor.

The field tests are essential. Financing for these tests should be fairly readily available.

Sanitary engineers may once more rejoice; the scientific advance of two years ago seems unshackled from its human entanglement.

New York Planning Firm Gets Contract in Cuba

Paul Lester Wiener, Jose Luis Sert and Paul Schultz, partners of Town Planning Associates, of New York City, have been awarded a contract to act as chief consultants to Cuba's newly-created Commission of National Planning.

The firm also will advise the Minister of Public Works.

Scope of the work includes regional planning as well as a master plan for Havana as well as other Cuban cities.

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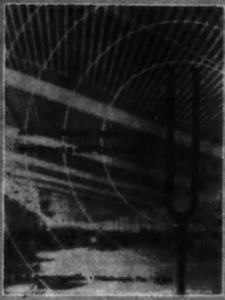

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AN ANALYSIS
OF SIX POPULAR ROOF CONSTRUCTIONS

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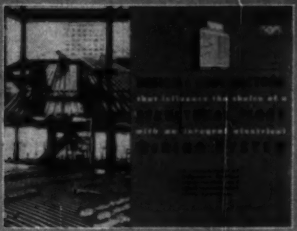

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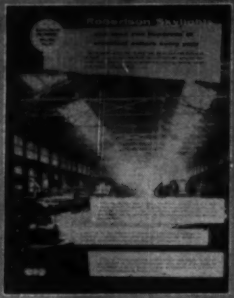

5

ROBERTSON
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7

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1. Acoustical Data on Q-Deck: It has long been known that the fluted underside of steel deck provides some acoustical value, yet demand for more has led to this new low-cost method. Application details and test data are included.

2. An Analysis of Industrial Roof Construction: This valuable booklet compares all the better-known roof types (flat, monitor, bow-string, high-low bay, saw tooth) on the basis of structural steel, volume, roofing, sash area, flashing, ventilation and daylighting.

3. Design and Cost Factors of Structural Floor Wiring: This study compares Q-Floor with other conventional floor systems using underfloor duct. Based upon a typical multi-story building, the book is replete with charts and cost analyses of all structural components.

4. Daylighting Cost Analysis: This new and unusual study contains a questionnaire, which when properly filled out will reveal how quickly scientifically planned natural daylighting will pay for itself in a structure through savings in electricity. All data are substantiated.

5. New Composite Q-Floor Catalog: This newly revised catalog contains many examples of the latest Q-Floor buildings and a full exposition of Q-Floor advantages. Structural details and specifications are more complete than ever before.

6. New M-Type Q-Panel Catalog: Recent newcomer to the Robertson product family is the M-Type Q-Panel which possesses unique advantages over other types of modern curtain wall construction. The book contains 3 pages of structural details plus complete specifications.

7. New Long-Span Q-Deck Catalog: Another new Robertson product is this sturdy, yet exceptionally long-span deck. Easy to handle and erect despite its length up to 32 feet, it is especially designed for schools and supermarkets and other structures in which unbroken spans and a saving of structural steel is beneficial.

8. Ventilation Engineering Booklet: More than a ventilator catalog, this booklet not only describes products, but contains detailed tables of exhaust capacities, based upon average wind velocities, temperature differences and height above intake. Use the coupon below.

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A Shopping Center That Can Change

Saving of formwork and adaptability to easy future modification are prime advantages of a design for a shopping center now under construction at Roosevelt Field, near Mineola, N. Y.

Formwork was eliminated for the 1,300 x 700-ft main floor by the use of 4 x 16-ft precast concrete floor panels. Cast near the site, the panels are moved in stacks by straddle carriers to a crane that places them directly on the steel frame to form the main floor.

• Tunnels for trucks—While the total area to be occupied by the continuous basement will be 1,300 x 700 ft, the shopping center will appear to shoppers as ten separate structures, attractively landscaped. Beneath the main floor, trucks will move through tunnels to unloading platforms.

Nine of the ten structures will appear as one-story buildings at the shoppers' level. The tenth building, centrally located, will have two stories and be occupied by a department store, and will be the only exception to a basic modular construction plan throughout the project.

Site is the former Roosevelt Field, from which Charles Lindbergh took off on his history-making flight in the spring of 1927. The area around the 143-acre field has long since been heavily built up as a residential area and use as an airfield discontinued some years ago. The ten structures are centered in an area that is large enough to accommodate in addition parking of 10,000 cars.

• Space to suit what tenant?—One of the big problems in laying out shopping centers stems from not knowing who the tenants will be prior to construction, so that space can be designed to accommodate them. The owners, Webb & Knapp, Inc., strove for a plan in which they would not have to worry about modification if one tenant—say a shoe store—moved out, and another—perhaps a bakery—moved in. Hence, one major goal was flexibility.

However, flexibility had to have a low price tag—small cost increases in a unit layout could result in large expenditures when extended to the entire project. Economy was a major goal and flexibility could not be achieved at its expense.

To arrive at a plan, W & K conducted extensive studies of other large shopping centers in the U. S. On the basis of information obtained, plus their own ingenuity, the architects, engineers and designers arrived at a plan that met their objectives. The general contractor, consulted before the plans were finalized, was also instrumental in achieving this plan.

Essentially the design is simple: Spread footings topped by pedestals form the base for wide-flange steel columns spaced to provide 26 x 16-ft bays in the basement. Above this level, alternate columns are omitted. There, column bays are 26 x 32 ft.

A 10-in. or 12-in.-thick reinforced concrete basement wall was constructed around the outside of the basement. Truck tunnel entrances 26 ft wide and 12 ft high were left in the wall at various points.

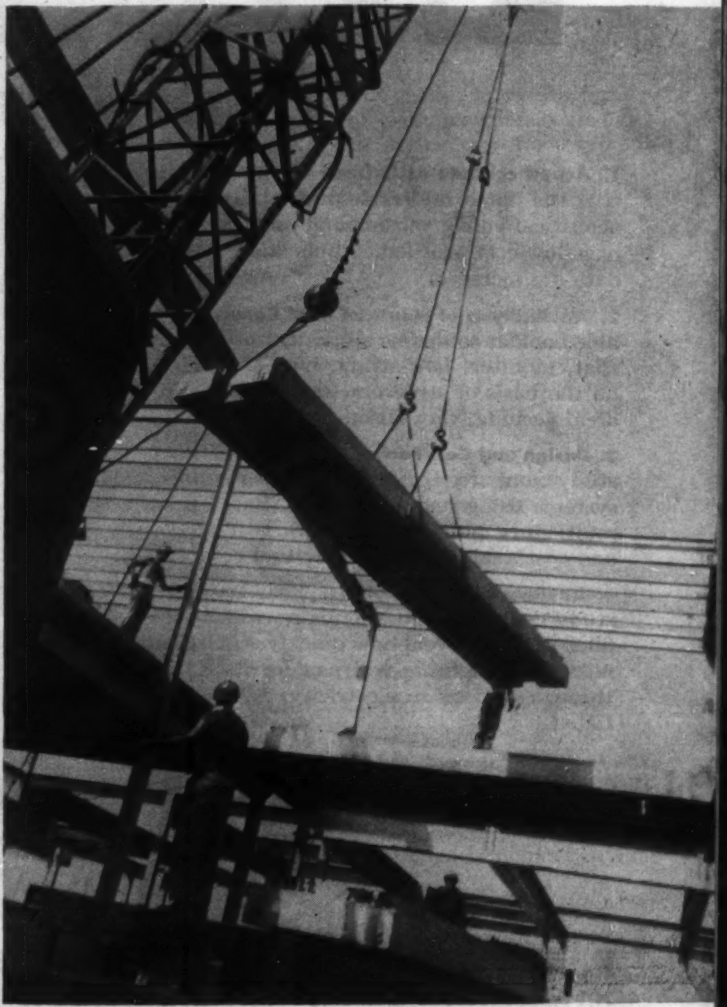
• Panels do trick—The flexibility that is the keynote of the structure is provided by the adaptability of panel construction to future modification. Each store area can be adapted to a merchant's needs by merely juggling the floor panels to suit his purpose. Should the prospective tenant desire air conditioning or a heating system of such a nature as to require unanticipated ductwork, necessary opening in the floor can be obtained by omitting a precast panel. Or if the tenant desires a stairway or conveyor system to the basement, the solution is again simple—just leave out a panel. Selected after careful study, the 4 x 16-ft dimensions of the precast slabs are well suited to such purposes, according to the designers.

The flat roof of the building is made up of poured gypsum roofing supported on light tees, which, in turn, rest on I-beam purlins spaced 5 ft 4 in. c-c.

• Modular design throughout—The shopping center was designed around a module 6½ ft square. Even the store fronts are based on this module and are also designed to be flexible. Vertical T-mullions at 6½-ft intervals will carry glass or panelling easily interchangeable to meet future needs. A checkerboard sidewalk—designed to provide eye-relief for shoppers—will also employ the 6½-ft module.

Store exteriors will be brick where there are no store fronts. Tenants of the buildings will be separated from each other by concrete block partitions.

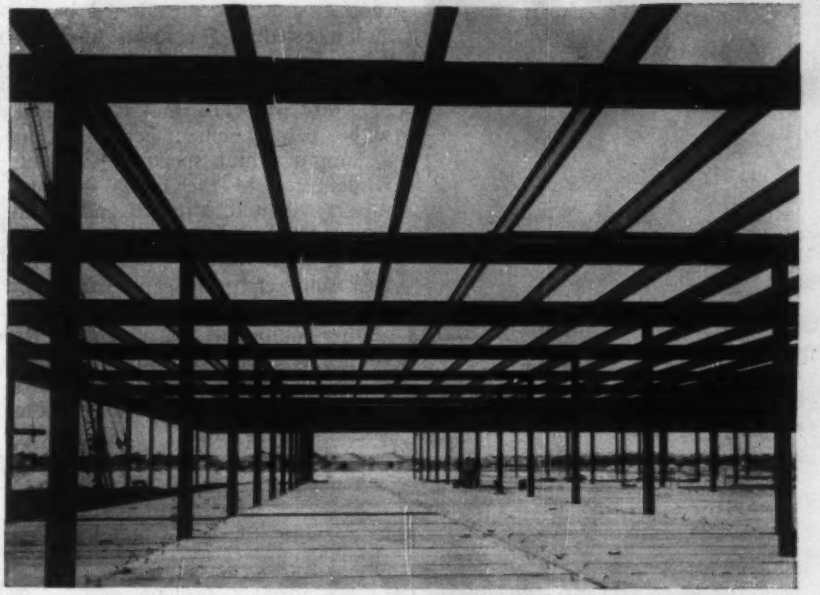
Rectangular recesses have been provided in the main floor at intervals between the buildings, to accommodate shrubbery and trees. Other recesses will be used for



PRESTRESSED PANEL is swung into position over basement truck tunnel where long spans are needed.

With Tenants

Flexible design with interchangeable panels is adaptable to any tenant's needs. Panels, as shown at right, are easily moved to accommodate duct work, stair wells and conveyors.



long narrow pools, where water will spray at various angles. About 2,400 gal of recirculating water will be used.

- **Precast panels placed fast**—Construction of the main floor is simple and proceeds rapidly, with as many as 90 of the two-ton panels placed per day. Panels are channel-shaped in cross section, 2¼ in. thick at the center, with 9-in.-deep flanges. They are placed by a large crane that passes down every third aisle of the building setting them in place on both sides.

The top edge of each panel is recessed lengthwise to form a key. Two adjacent keys form a groove into which are placed V-shaped metal chairs to support a reinforcing bar. The key is then filled with cast-in-place concrete, to carry the shear between panels.

- **Forms have steel parts.** The underside of the finished panel is formed by a reinforced grout mold. Edges of the mold are protected by 1 x 1 x ⅛ in. angles, to which are attached strap-anchored welding plates 4½ ft on center. Side forms are hinge connected to the welding plates and are 10-ga steel sheets with angle stiffeners.

Reinforcing in the precast panels is furnished by a 4 x 4-in. wire mesh supplemented with several heavy, de-

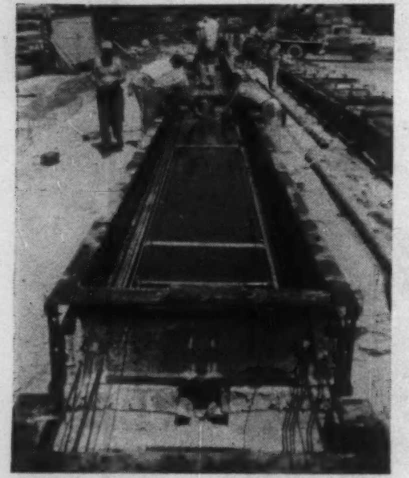
STEEL-SIDED FORMS receive concrete from ready-mix truck for precast reinforced concrete panels. Concrete is then vibrated, screeded and finally broom finished.

STRADDLE CARRIER delivers stack of four precast panels to crane. Planks under carrier distribute heavy wheel load.

CASTING BEDS yielded one pour a day. Panels were removed, stacked for curing.

. . . And Flexibility Can Be Economical

FORM SOFFITS of prestressed concrete are jacked apart to adjust for required panel widths. Gap between soffits houses 3-in. pipe for steam curing of concrete.



DOME FORMS of 10-ga steel are oiled before concrete is placed. Transverse tape covers joints in domes to prevent panel damage from squeeze due to prestress.

formed bars. Steel is tied into a rigid cage in a nearby abandoned hangar and wheeled to the forms in 200-lb assemblies.

Concrete used has a 28-day strength of 3,500 psi. The mix is 1:2.3:3.4, with 6 bags of cement per cu yd, and a slump of 4 in. is specified. Concrete is delivered to the forms in truck mixers, vibrated, screeded and finally broom finished.

Due to the very hot weather of the past summer, great care had to be taken in curing. A clear-resin-base sealing compound was applied to the surface of the slabs, which were then covered with tarpaulins for four days. Primary purpose of the sealing compound was to furnish bond between the slab and the 1-in. topping that is applied after the slabs are in place.

Slabs are removed from the forms by vacuum lift on the day following the pour and placed in curing stacks up to four panels high. After four days of curing they are lifted by straddle trucks and moved to the building where they are hoisted into place. Concrete must have a minimum strength of 800 psi for removal from forms by vacuum lift, and 2,500 psi for erection. Lifting loops of $\frac{5}{16}$-in. dia strands are provided for each of the panel for erection purposes.

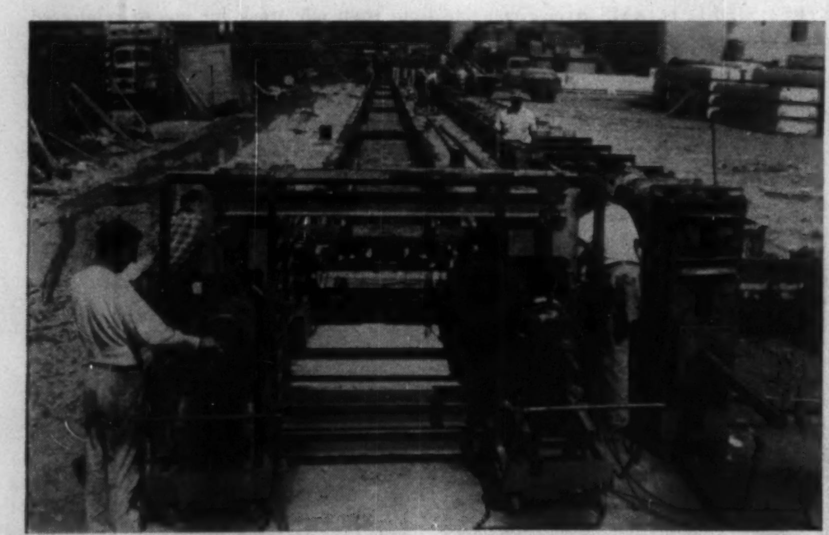
• Long panels are prestressed—The precast concrete floor panels with standard reinforcing bars can not be used for the long spans over the truck tunnels. Instead, similar, but prestressed panels are utilized. Lengths vary, depending on the width of the tunnel, from 26 ft to 33 ft, but all are about 4 ft wide. Wires having an ultimate strength of 240,000 psi make up the $\frac{3}{8}$ in. prestressing strands that are anchored throughout their length by bond.

Both precast and prestressed panels are manufactured by Precrete, Inc., but only the prestressed panels are made at Precrete's Astoria, N. Y., plant. One of the most interesting aspects of the whole job is the design and operation of the forms of the prestressed panels.

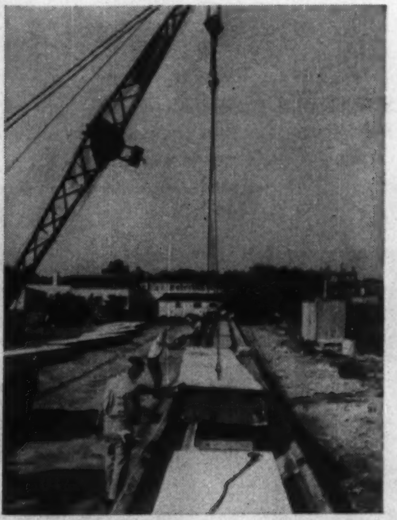
These were the features desired: 1. A tensioning bench several hundred feet in length so that many slabs could be cast in one operation; 2. An arrangement to permit the panels to move freely toward the fixed end of the bench when the tension in the strands is released; 3. A movable and flexible dome, in the forms, since the restraining force applied by the strands at the bottom of the channel flanges tends to camber the panel and in a rigid-dome form would crack it; 4. Ability to strip the forms without delay.

• Forms are prestressed also—The existing prestressing bench at the plant (ENR Aug. 26, 1954, p. 36) was modified for the manufacture of these panels. The form has for a base a raised prestressed concrete soffit consisting of two 5-in.-deep, 20-in.-wide and 216-ft-long planks. Outer sides are formed by 5-in. steel channels tied into the concrete with straps. The soffit sits on timber blocks and can be adjusted in width. Hinge-connected to the soffit are 10-ga steel side forms that are held in place by diagonal bracks.

The dome forms also are made of 10-ga steel. These steel domes are placed on timber supports and an-



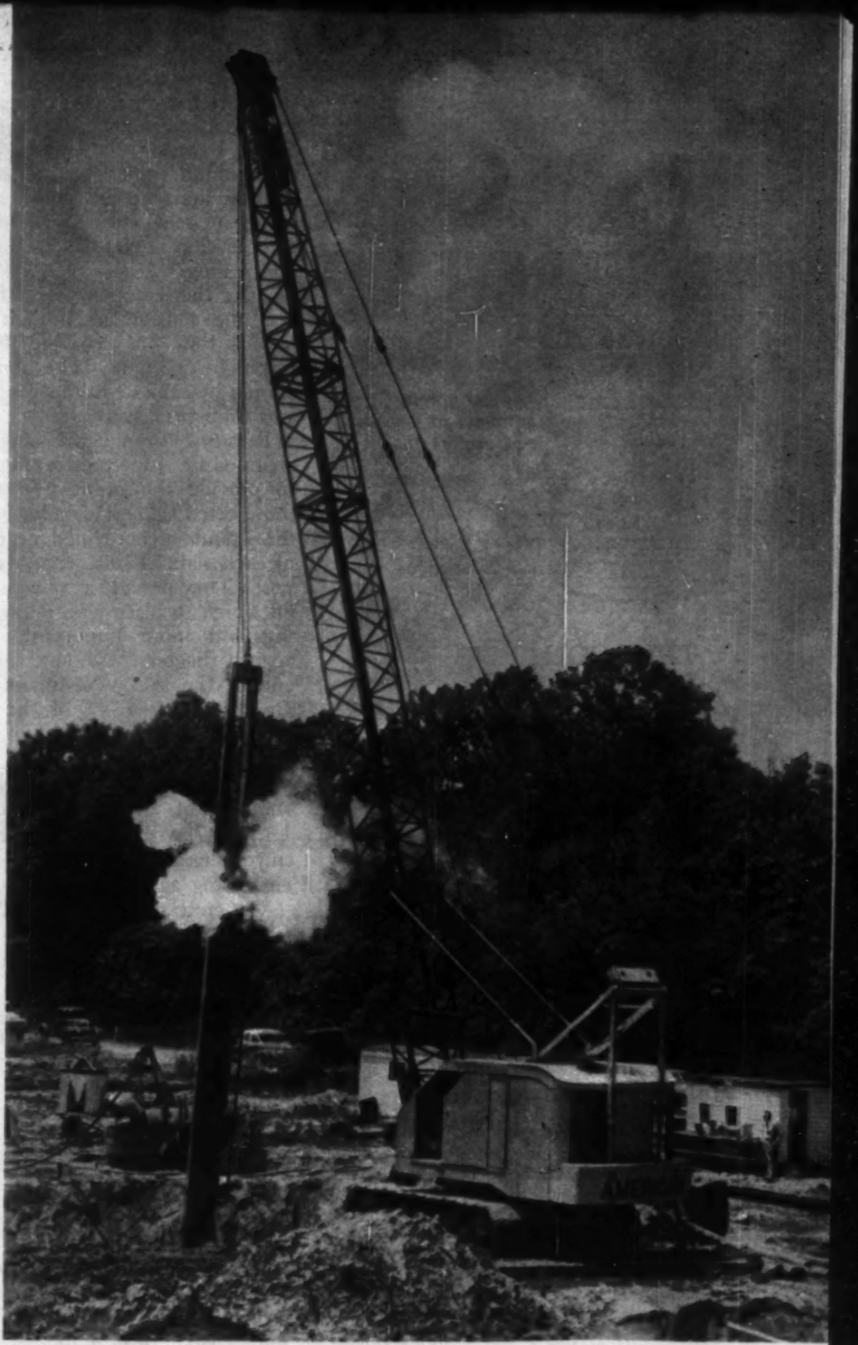
HYDRAULIC JACKS supported on a heavy steel frame apply tension to prestressing wires. Wires are anchored at the far end of the forms.



SIDE FORMS swing open as panel is lifted by a crane.

(Advertisement)

RAPID PILE DRIVING, using a 50-foot swinging lead and No. 1 Vulcan steam pile driver, is one of the many jobs handled efficiently by an American 700 Series Crawler Crane on two Indiana State Highway bridges. Crossing the Patoka River, one of the bridges will be 192-feet long; the other will be a 7-span, 480-foot structure. The steel beam bridges are on 24-foot concrete piers which rest on 36 creosoted piles averaging 60-feet in length. After driving the piles, the American will be used for placing concrete and setting steel . . . all with a minimum of down time . . . thanks to the speed and ease of changing boom sections.



FINGER TIP AIR CONTROLS on the American 700 Series Crane make jobs a lot easier for operator John Walker. Instead of tugging at hard-to-operate mechanical levers, he gets faster action and higher production with American's air controls and he has a sensitive "feel of the load" at all times. John, who broke in on steam rigs 30 years ago, says the American's Air Controls are "the real thing."

Indiana Contractor Reports:

CHANGES BOOM SECTIONS FASTER WITH AMERICAN

In building two bridges 5 miles east of Princeton, Indiana, G. H. Allen, Contractor and Engineer, needed a big, husky crane that could be adapted quickly and easily to handle many different jobs—driving piles, handling and setting steel, and pouring concrete. A new American 700 Series Crawler Crane provided the contractor with the flexibility he needed. The ease with which the American's boom sections can be changed for various assignments reduces down time considerably. John Walker, crane operator for 30 years, says, "I change boom sections faster with less down time on the American than with any rig I've been on!"

ENGINEERING "KNOW-HOW" that goes into the design and production of the American 700 Series Crawler Crane is a result of experience — 78 years making heavy equipment for the world's biggest and toughest jobs. For detailed, factual information on how American Crawler and Truck Cranes can help you cut costs and increase production, see your American distributor, or write American Hoist and Derrick Co., St. Paul 1, Minnesota.

chored to the soffit with cables. Grout seepage is prevented under the steel domes by using 2-in. plastic masking tape around the edges. A flexible expansion joint in the dome acts as a hinge in relieving any camber that may develop in the panel arising from prestressing.

After the panels have set for a day and the tension in the strands released, they are removed from the forms by a crane. The domes, anchored by cables to the soffit, pop out and drop back into place.

Running through the flanges of the channel are ⅜-in. prestressing strands, to provide the negative moment in the erected slab. Two additional 4-in. dia strands are provided near the top of each slab. These serve a dual purpose. They provide a convenient chair on which to place wire mesh reinforcing and more important, reinforce against diagonal-tension cracks at the end of the slab. Prestressing strands are stressed to 67% of the ultimate strength.

• **Casting**—Concrete used has a 28-day strength of 5,000 psi. The mix is 1:1.85:2.7, with 7½ bags of cement per cu yd, plus a retarding agent and an air-entraining agent. Slump is 4 in.

Concrete is placed in the forms from a non-agitating dump truck delivering from a mixing plant 30 minutes away.

Four hours after the pour, the concrete reaches its initial set. Steam curing is then applied. Supplied by a 30-hp gas boiler, boosted with a preheater, the steam is fed through a 3-in. pipe placed in the gap between the two sections of the soffit, and jets into the domes through ⅛-in. dia holes placed 15 ft c-c. The space is heated to about 180 deg, the concrete to 140 deg. The whole assembly is covered with a tarpaulin to retain the heat and moisture. Concrete reaches the required strength of 3,500 psi on setting overnight.

The working day begins with releasing the tension in the strands of the previous day's pour. Wires are cut, panels are removed and the bed is made ready for the next pour. A flat top truck then hauls the 5 to 7-ton panels to the basement of the shopping center 16 miles distant.

The prestressed panels are hoisted into place at the site by the same crane that places the reinforced concrete panels. But there was the problem of how to get these large panels in place through a forest of first-floor and roof beams. The solution worked out very well when Precrete arranged with Bethlehem Steel Co. to erect the panels. This meant that Bethlehem placed the floor panels while erecting the steel, thus saving considerable idle crane time. The owner gets the building faster because as the steel goes up the concrete panels are placed.

• **Handled as two separate projects**—All work is done by New York City firms. Designer of the precast slab is Val Buergin, engineer-in-charge for Severud-Elstad-Krueger, consulting engineers for the new shopping center. Detailing and design of the prestressed concrete plant facilities were by George S. Pinter, consulting engineer for Precrete, Inc., manufacturer of the precast panels. Jack Abrahams is Precete's engineer at the site.

For the shopping center itself, I. M. Pei & Associates were the designers and Brugnoni & Boehler, the architects. John Darragh is the general superintendent for the George A. Fuller Co., the general contractor. Webb & Knapp Construction Co. is supervising the work in the field.

Research Center to Feature New Type Air-Conditioning

A new type of air-conditioning unit will be installed in the Borg-Warner Research Center on which construction has started in Des Plaines, Ill. The under-window unit is claimed to be more efficient and more compact than other units now available.

The first building of the center will contain about 40,000 sq ft of floor area. It will form the central section about which a 200,000-sq ft laboratory will be built. The other sections will be constructed as one-story wings attached to the initial structure.

The air-conditioning unit was developed by Borg-Warner engineers, who utilized their experience in the aircraft and automotive industries. Key to the design is the heat exchanger. It consists of tubes connected "in parallel" to a header, which reduces friction losses compared with continuous-coil heat exchangers. The tubes have an oval cross section, to improve the efficiency of the exchanger even more.

Record Pulp-Mill Expansion

Dominion Construction Co., Ltd., Vancouver, B. C., has been awarded a $40-million contract for expansion of MacMillan & Bloedel's pulp and paper operation at Port Alberni on Vancouver Island.

This will be the largest single pulp building-program ever undertaken in the Canadian province. One measure of its size is that 7,000 piles are being driven for the foundation of the main project.

Expansion will double present capacity of sulphate pulp, add a 180-ton general-purpose board machine and a 300-ton newsprint mill.

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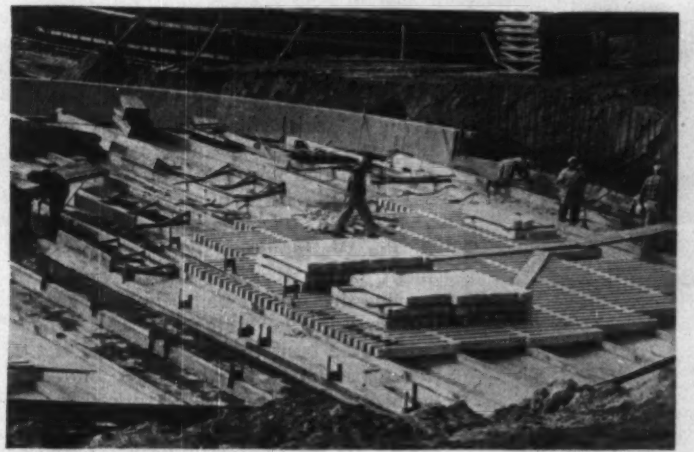

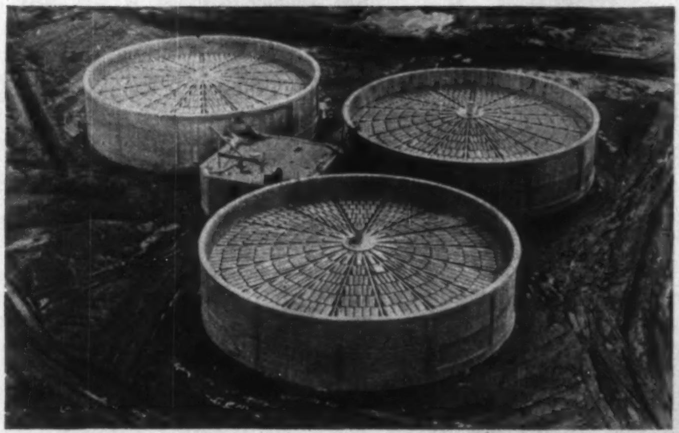

Precast CONCRETE UNITS

offer many advantages for Modern Sewage Treatment Works

Precast concrete units are being used more and more in sewage treatment plant facilities. There's a good reason. Precast concrete units offer all the advantages of conventional concrete construction—plus speed, economy and easy handling. Here are typical recent examples:

FILTER UNDERDRAINS of the six trickling filters in the East Providence, R. I. Sewage Treatment Plant are precast, reinforced concrete beams (top photo). Because of concrete's great strength they could be used as cribbing to support the weight of the crushed traprock filter medium.

DIGESTER COVERS in the East Providence plant (second photo) are 2-in.-thick, tongue-and-groove precast concrete planks. Since concrete resists rot in a damp atmosphere, it was chosen over less durable materials.

Covers for the digester tanks of the Benton Harbor-St. Joseph, Mich. Sewage Treatment Plant (third photo) are short slabs of precast concrete that rest on purlins connecting radial girders. Crevices between slabs are calked with mastic. Triangular spaces between slabs and girders are filled with grout. Covers are 80 ft. in dia., rise 3 ft. from the outer edge to the center.

SLUDGE BED PLANKS AND POSTS in Elmira, N. Y. Sewage Treatment Plant are precast concrete units (bottom photo), part of a million-dollar plant addition. Durable precast concrete units can withstand a lifetime of weathering and freeze-thaw cycles in such installations.

Precast concrete construction is moderate in first cost, requires little maintenance, serves for years. The result is ***low annual cost,*** the real measure of the economy of any construction.

For more information, write for a free illustrated booklet, *"Sewage Treatment Works."* It is distributed only in the United States and Canada.

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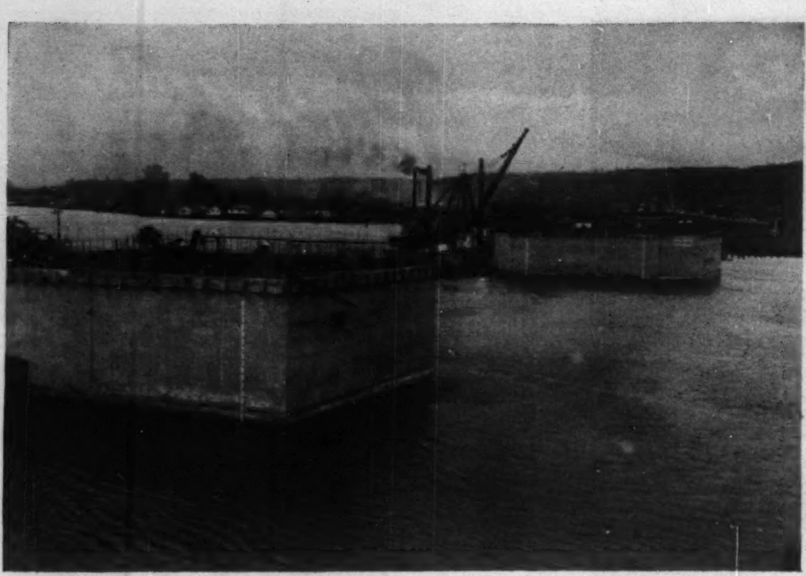


TOWED to the site from a graving dock downstream, these two bridge piers are actually parts of one structure. Concrete has still to be added on top.

Boxes Buoy Bascule Bridge

A $6.5 million bascule bridge across the Duwamish River at First Ave. S. in Seattle will be supported on two reinforced concrete cellular piers that are 85% buoyant. The piers were built in a single unit, with connecting struts, in a downstream graving dock and towed to the site, where they were permanently anchored.

The buoyed-up piers were decided upon by the Seattle city engineering department (ENR Dec. 23, 1953, p. 23) because of the unstable river bottom, which consists of fine, black sand on top of soft clay and could not support a conventional pier. Although weighing 19,000 tons, the boxes will impose a burden of only 1,000 psf on the river bottom.

Each pier is 95 ft 6 in. by 59 ft 6 in. in size. Most unusual feature is that they are connected below the channel bottom by two reinforced concrete cellular struts 12 by 16 ft 9 in. and 244 ft 1 in. long, joined by three 8x12 ft cross struts. The longitudinal struts will keep the piers in alignment and permit operation of the double bascule, even in the event of an earthquake.

• **Pier details**—Each pier has 24 cells, or compartments, each about 14x15 ft in size. The bottom slab at El −64.0, is 1 ft 5 in. thick, with other slabs at Els −52.0, −34.5, −17.0 and −2.5, diminishing in thickness to 9 in. Outside walls range in thickness from 1 ft 4 in. to 5 in. All interior walls are pre-cast, 9- to 12-in. thick, with bottom steel tied into the slab steel.

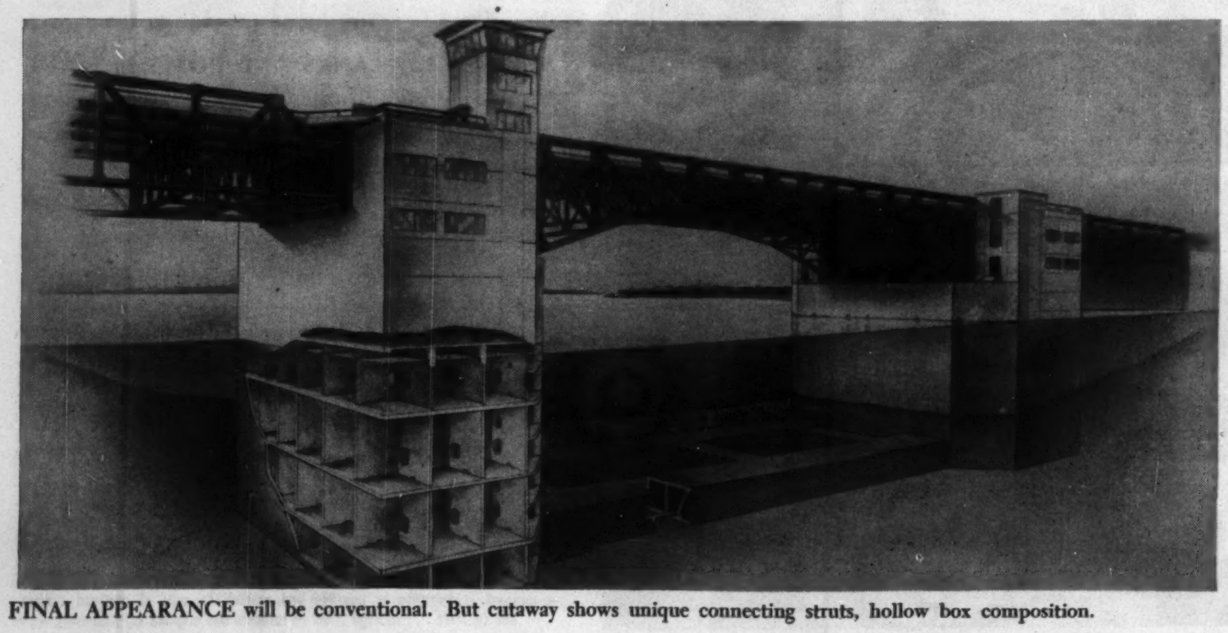
General Construction Co., awarded a $1.4 million contract for the piers by the Washington Highway Department, began work late last year in its graving dock about half a mile downstream from the bridge site. Exterior walls were built to a height of 27 ft, the maximum height which the buoyancy of the structure would support.

The structure—complete with the long connecting struts—then was launched and towed upstream early this year by four tugs, and temporarily anchored, upstream from the bridge site, to four 55-ton concrete blocks, which had been cast in the same graving dock.

Before final positioning of the pier structure was carried out in June, the two shafts were built up another 40 ft, and the river bottom was dredged to grade, at El. −64.0. The first positioning attempt failed when the river, swelled by melting upstream snow on the warmest day in some 15 years, filled the dredged area with silt in a few hours.

Later, after the river had subsided, the area was dredged again, to a depth of 2 ft below grade, and 24 piles were driven to support each pier shaft temporarily. Each pile was designed to support a 30-ton short-time load.

• **Placing**—The pier structure, maneuvered by six-way cables from a winch on each shore, with assistance from two tractors, was placed above the piling and lowered into place within a



FINAL APPEARANCE will be conventional. But cutaway shows unique connecting struts, hollow box composition.

tolerance of 1 in. The final positioning began at midnight on an outgoing tide and was completed at 5:30 a.m., when the last of 1,000,000 gal of water was pumped into the structure to serve as ballast. The bottom slab, which had been 10 ft off the bottom, now was supported on the piling, at grade.

Depth of water in the lowest tier of cells in the two shafts and in the struts was held to 11 in., to avoid undue strain on the struts during positioning. Balance of the necessary gallonage was pumped into the second tier of cells.

After the pier structure had been placed on the piling, material dredged from upstream was dumped and swept into the opening under the structure, first by tidal action and later by jets from the dredge. Finally, grout of sand and cement was pumped through fifteen 2-in. pipes extending down through each pier shaft, until the cavity below the structure was completely filled. Backfill also was placed over the connecting struts, to restore the channel to its original depth.

• **Weight added**—After the piers were positioned on the river bottom, water was pumped into the shafts in sufficient volume to simulate the load the piers will carry when the bridge is completed. As the piers are built up to their 140-ft eventual height and the bascule leaves are installed, the water will be drained out until it reaches its permanent ballast level of 13.4 ft within the structure at low tide.

At high tide, this depth of water within the structure will be more than doubled. Flooding ports at extreme low tide level, El −17.0, allow a flow of water in and out of an impounding chamber. As the tide rises, water flows into the tidal chamber above, balancing the tendency of the rising tide to lift the piers. At high tide, 60 ft of the shafts of the 19,000 ton structure will be below the level of the water. Without the water, the structure would lack only 9 ft of draft to be buoyant.

• **Concrete work**—The General Construction Co. contract calls for construction of the piers to approximately El 17.0, after which the Alton V. Phillips Co. will build them to their ultimate height and install the bascule leaves under a $1,273,000 contract. Separate contracts also have been awarded for the approaches, with Peter Kiewit Sons' Co. holding a $665,000 contract for the north approach and Roy T. Earley Co. a $1,009,000 contract for the south approach. N. Fionto Co. holds a fifth contract in the amount of $261,000 for grading approaches, access roads and detour roads.

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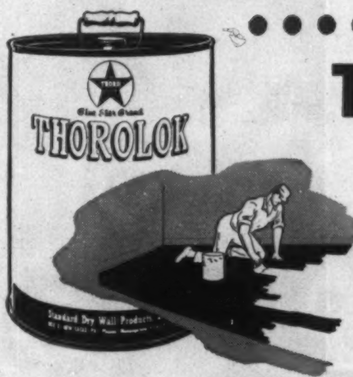

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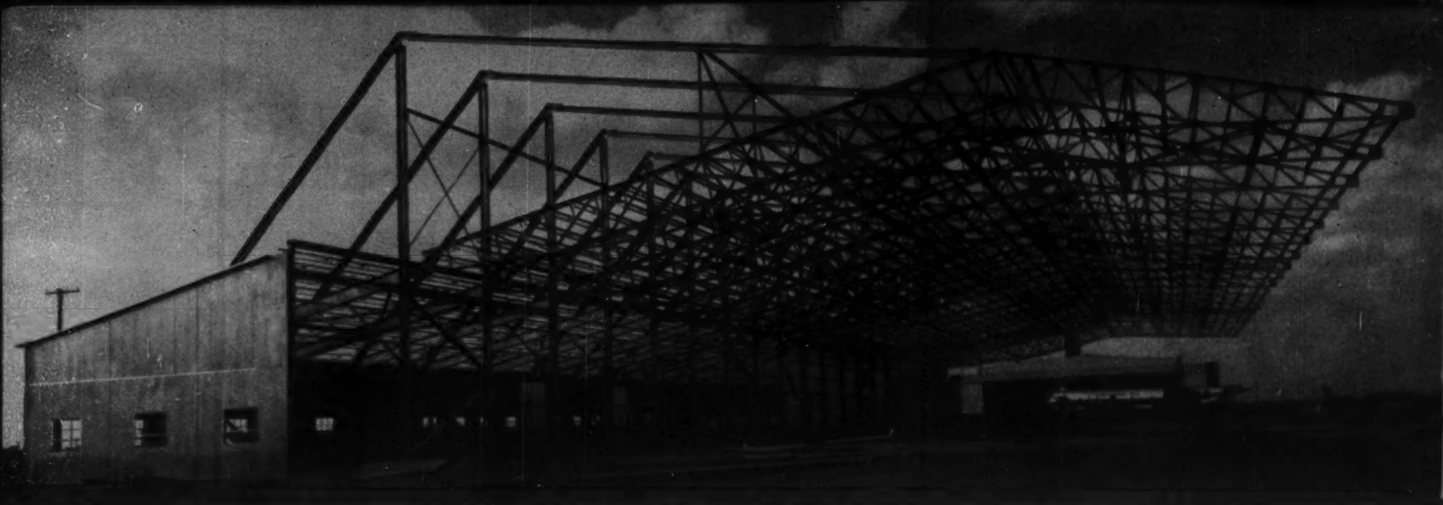
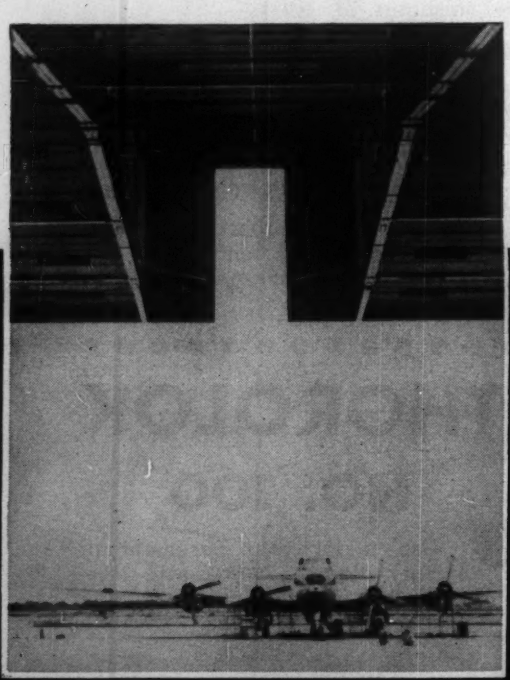


The 76-foot-long member which connects the top ridge of the cantilever to the top of the inner column is designed to act either in tension or compression—supports weight of roof loading, and withstands 30 psf uplift from wind under roof.

Ingenious hangar



Vertical clearance rises to 45 feet inside the three tail housings which open at the edge of the overhanging roof to admit the tails of these Boeing Stratocruisers.

The unique hangar was designed and constructed by the Erwin-Newman Co., of Houston, Texas, under their design patent No. 2,687,102.

The hangar is designed for 25 psf roof load and 15 psf horizontal wind force. Rear columns are bolted to deep concrete piers since they must withstand a pull of 14 tons per column from the weight of the cantilevered roof structure, which amounts to only 11.8 psf.

has no columns...

cantilever construction spans 120 ft. at cost of only $2.40 per sq. ft.

● The hangar area of this efficiently-designed building of Temco Aircraft Corporation at Greenville, Texas, is completely unobstructed by supporting columns. The clear area measures 120 ft. deep x 432 ft. long x 30 ft. high.

The roof is carried on 120 ft. steel truss cantilevers, connected by means of rocker joints to 56 ft. tall inner columns, which in turn are joined to 19 ft. outer columns placed 40 feet farther back. The space between the two rows of columns is conveniently used for workshops, parts storage, and offices.

The prefabricated Structural Steel framework for this hangar was bolted together in *only six working days.* The framing cost $2.40 per sq. ft. Framing and roofing cost $3.26, and the complete building including services, foundations, and 32,400 sq. ft. of concrete apron totaled $5.06 per sq. ft. Approximately 1,000 tons of Structural Steel were used in the building framework. Speedy construction was an important factor in holding down costs.

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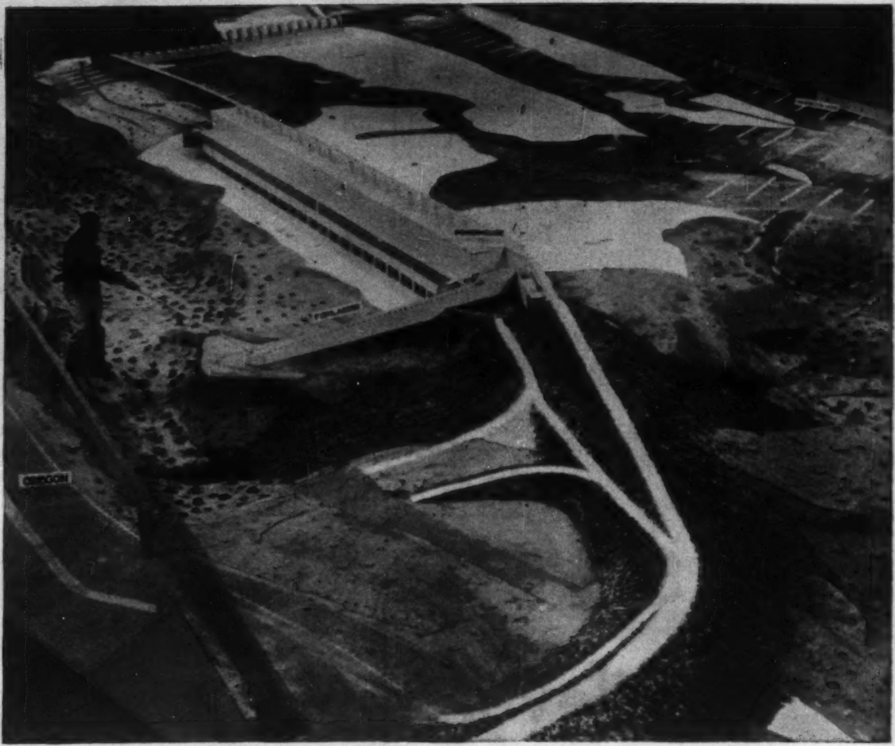
The Dalles Dam

First power from an initial capacity of 1,122,000 kw (14 units) is expected to be on the line at The Dalles late in 1957. It will probably be the last major Columbia River dam that is entirely a Corps of Engineers project. Two additional authorized dams—John Day and Priest Rapids—may be built as partnership projects.

Work at The Dalles has been divided among several large contracts. Some phases of the earlier work were described in ENR, Oct. 22, 1953, p 29 and Jan. 6, 1955, p 36.



Hydraulic model proved feasibility of method . . .

Taming the Columbia at The Dalles

Bids for the last major contract of the Dalles Dam were opened in Portland, Ore., Sept. 20. Low bidder with a bid of $4.3 million was Atkinson-Ostrander Co.—a joint venture of Guy F. Atkinson Co. and Ostrander Construction Co. that has three other major contracts on the work totalling $46 million.

The contract will include a spectacular underwater rockfill dam construction operation. Some 700,000 cu. yd. of the 2,250,000-cu. yd. rockfill closure structure will be dumped underwater. And the Corps of Engineers designers expect the resulting fill to have less than 200 cfs. leakage. The river closure at The Dalles differs from most other large dams in that the closure fill will form part of the permanent dam structure.

Bidding on the work was almost as spectacular as the job promises to be. Atkinson-Ostrander were more than $1 million below the second low bidder—a joint venture of Morrison-Knudsen Company, Inc. and General Construction Co. Four other bidders ranged up to $6.7 million with the government estimate being $5.1 million.

Atkinson-Ostrander were generally lower on most bid items. But it was on the major items of rock and sand moving that their bid was substantially low. Atkinson-Ostrander bid $1.18 per cu. yd. on quarry run rock and rock spalls, $0.88 per cu. yd. on embankment blanket material and $0.84 per cu. yd. on removal of embankments. The second bidder's figures on these three items were $1.30, $1.57 and $2.00 respectively. Estimated quantities were 1,350,000 cu. yd. of quarry run rock and rock spalls, 658,000 cu. yd. of embankment blanket material and 330,000 cu. yd. of embankment removal. Thus, on these three items alone, Atkinson-Ostrander was $1 million lower than the second bidder.

• Underwater rockfill—The planned closure dam includes a mass section of extra-large quarry-run rock plus succeeding layers of finer material on the upstream face for watertightness. The rock mass will be formed by dumping over the top of the fill as it is built out from the Oregon shore. Model studies (see box) have demonstrated feasibility of building such a fill with rock averaging 500 lb in weight in river flow up to 200,000 cfs.

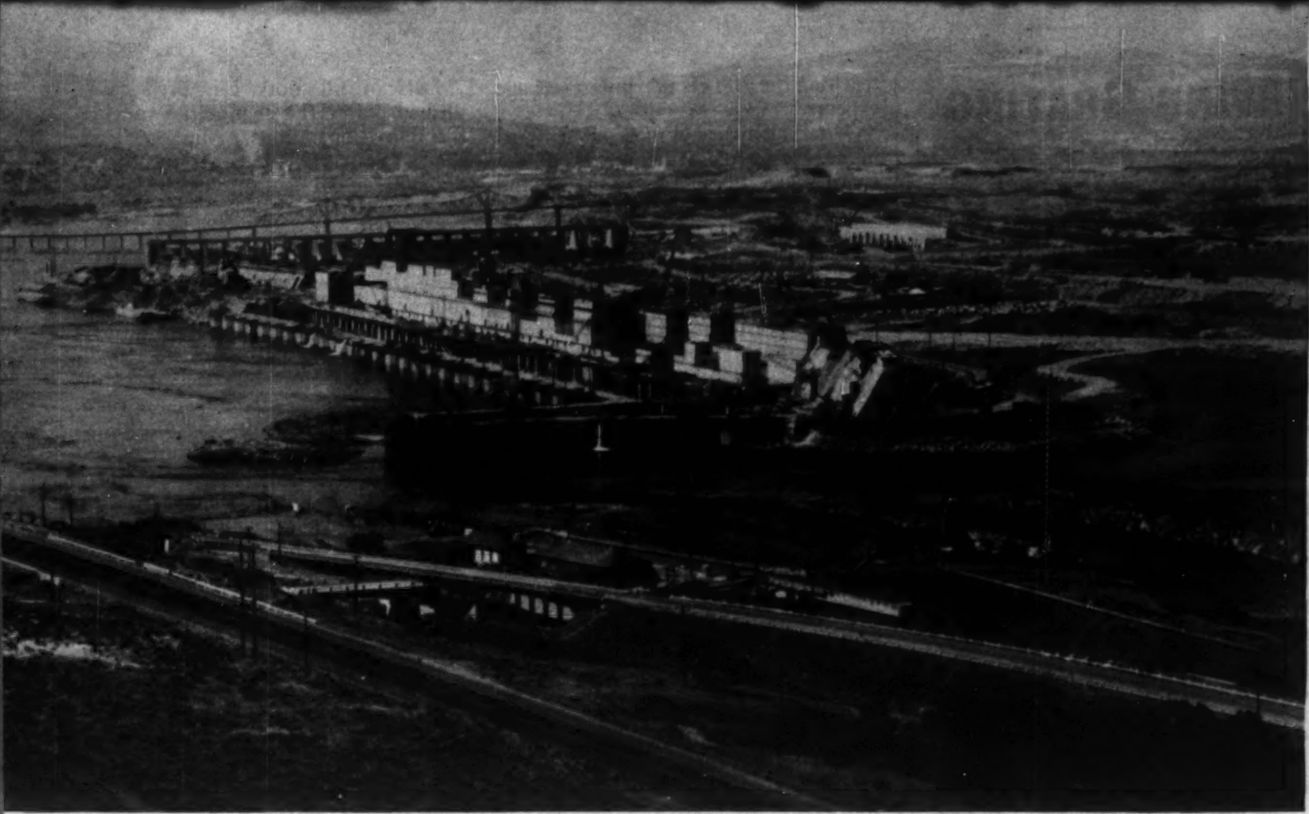
The dam's underwater section will reach water depths in excess of 150 ft, well below sea level. With river flow 200,000 cfs, water surface after closure is expected to be El 87. Thus, plans call for the dam from El 90 to El 185 to be built in the dry by normal rockfill dam placing methods.

Model tests confirmed feasibility of the plan. When large sized rock is dumped in the water near the upstream face of the fill, almost all of the rock will reach a position within the limits of the dam section. There may be some loss of rock, but it is expected to be minor.

Nothing in plans or specifications holds the contractor to a specific method of rock placing. But it is expected that the method developed by the model studies will be used. Thus, the fill will gradually be built out from the Oregon shore to close the 600-ft wide channel.

• Will the rock stay put?—Two major questions might occur to experienced dambuilders. How will they get rock of the required size? And why won't the current be strong enough to carry 500-lb or even 1,000-lb rock away? At McNary Dam on the Columbia, closure was made by use of highline-placed, precast-concrete tetrahedrons weighing 12 tons. And even then it was touch and go to make the closure.

The Dalles is surrounded by thick basalt formations that result from pre-



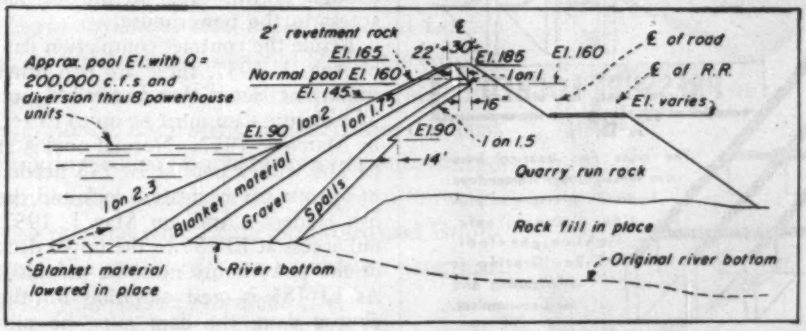
. for contractors bidding on closure of The Dalles Dam. Resulting . . .

. . . plug near Oregon shore must be permanent.

historic lava flows. With proper quarrying, the material will easily break into large size pieces, 500-lb and bigger. It is available within a half-mile haul of the dam.

Current is not the same problem as The Dalles. At McNary, the river had to be raised several feet before any water went over the low sections of the spillway that handled the river after closure. At The Dalles, on the other hand, the river will flow through eight bays in the powerhouse even while the closure dam is being built and the construction cofferdams are being removed. Sill level of the low powerhouse bays is El 58. If river flow is 100,000 cfs, water surface before closure will be El 75. Thus, as soon as the stoplogs are removed from these low powerhouse bays, about 25% of the river flow will be passing through the powerhouse. Although the upstream river level will be raised some 5 ft during the closure procedure, additional water will flow through the powerhouse every time a load of rock is dumped into the river.

At NcNary, the closure was part of a cofferdam surrounding powerhouse construction, in a straight line across the river. At The Dalles, powerhouse and spillway are built on a shelf beside the river for a minimum of cofferdamming. The river has been flowing in a deep channel near the Oregon shore which the closure dam will block. Depth is so great that it is infeasible to build a cofferdam for this final section of the project. The closure dam must become a permanent part of the structure.


2' revetment rock
℄
El. 165
22'
30'
El. 185
El. 160
℄ of road
Approx. pool El. with Q = 200,000 c.f.s and diversion thru 8 powerhouse units
Normal pool El. 160
1 on 1
℄ of R.R.
El. 145
16"
El. varies
El. 90
1 on 2
1 on 1.75
El. 90
1 on 1.5
14'
Quarry run rock
1 on 2.3
Blanket material
Gravel
Spalls
Rock fill in place
Original river bottom
Blanket material lowered in place
River bottom

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• What about watertightness?—Once the underwater rock mass is in place, there remains the problem of making it watertight. First of the upstream layers is a 30-ft thickness of rock spalls, quarry rock having 12-in. maximum size and 20-55% by weight passing a 3-in. screen. Next a thick layer of gravel will go in. At El 90, the gravel blanket thickness will be some 30 ft and at river bottom level it will be about 60 ft thick. Pit run gravel will be used coming from natural deposit some three miles upstream. It is not expected that the contractor will have to process this gravel to any great extent. The deposit runs 75-80% coarser than ¼ in. with about 4-6 in. maximum size.

Finally, a layer of blanket material will cover the face of the dam. The blanket material which comes from a different nearby deposit of good natural material is sand with 31-54% smaller than #4 mesh. The underwater section of the blanket is expected to vary from about 40 to 70 ft in thickness.

The blanket material is expected to be sealed by natural river silt thus

(*Continued on page 46*)

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reaching the 200 cfs maximum seepage expected.

Total quantities of material involved in the closure dam include 1,300,000 cu yd rock; 300,000 cu yd gravel; and 650,000 cu yd blanket material.

• **Time limitations**—Work must proceed according to a strict time schedule: fill must be placed during low flow season (October to March); river cannot be blocked during fish run period (ending about October 1); rail access to the powerhouse is needed across the closure dam at the earliest possible date.

This means that no work can be done in the main channel until Sept. 20, 1956. And the river closure must be made and rail access to the lower deck of the powerhouse provided by Jan. 15, 1957. In the four months between those dates there will be a burst of activity in placing the fill in the river channel.

A minor complicating factor is the existing Dalles-Celilo navigation canal. This canal will be replaced by navigation lock facilities being constructed on the Washington shore as part of The Dalles project. As minimum interference with navigation is desired, the canal must be kept in operation until Jan. 1, 1957. That leaves the contractor only 15 days to fill in enough of this canal to provide rail access to the powerhouse.

Beside the contract completion date of Aug. 1, 1957, there are two other important dates that must be met. The closure dam must be up to El 165 by March 1, 1957. Normal pool is at El 160 with a pool at El 155 needed to operate the navigation lock and the fish ladders. And, on May 1, 1957, rail access at El 185 to the upper deck of the powerhouse must be provided. As El 185 is crest elevation for the closure dam, the dam must be substantially complete by that date. Each of the major time deadlines carries a $4,000-a-day penalty.

Lots of fill work can be accomplished before the channel is available for filling operations. Almost all of this is along the Oregon side. Some 860,000 cu yd is expected to be in place before the struggle with the river begins. Part of this is in a river water section apart from the main channel. Here the contractor can test his river dumping methods. In so doing natural angle of repose of the various materials can be determined.

All of this assumes a river flow of less than 200,000 cfs during the time work is under way on the closure. This is a relatively safe assumption as 75 years of hydrographic records show an average flow of about 100,000 cfs during the October through February period. But there have been isolated instances of flow reaching better than 350,000 cfs for one or two days. Should the flow exceed 200,000 cfs, the contractor will be asked to cease filling operations. This will result in adjustment of the time deadlines in proportion to the shutdown period.

• **Underwater TV**—Some of the inspection of the underwater rock work will be accomplished by a closed circuit underwater television camera. First use of this system was made by design engineers recently when they suspected that the river channel bottom was not scoured clean as reported by a diver during a 1948 inspection. The TV camera operated from a barge disclosed a boulder deposit at about the point of the upstream toe of the closure dam. To seal this boulder mass, gravel and blanket material will be lowered in bottom-dump buckets. This will be the only underwater fill not made by dumping at the water surface except for a final zone of blanket material that will be lowerd in place on all of the blanket material placed by dumping from the surface.

Other inspection methods will include sonic depth sounders and the usual lead lines. And there may be

The Dalles Dam—Major Construction* Contracts

Contract	Contractor	Cost (millions)	Completion Date	% Complete Aug. 31, 1955
Powerhouse excavation and cofferdam	S. A. Healy Co.	$5	Jan. 13, 1954	100
Spillway Dam	Atkinson-Ostrander	14	Dec. 31, 1955	93
Powerhouse, Units 1 to 14	The Dalles Powerhouse Constructors	30	Jan. 2, 1956	95
Powerhouse, Units 15 to 22	Atkinson-Ostrander	19	Apr. 15, 1956	77
Navigation Lock	Atkinson-Ostrander	13	Oct. 1, 1956	40
Powerhouse superstructure	Montag, Halvorson, Cascade, Austin	13	July 1, 1958	29
Closure dam and cofferdam removal	Atkinson-Ostrander	4	Aug. 1, 1957	0

* Relocation and minor contracts totaling $8.3 million still under way. Supply contracts including turbines, generators, and gates exceeding $40 million have been awarded.

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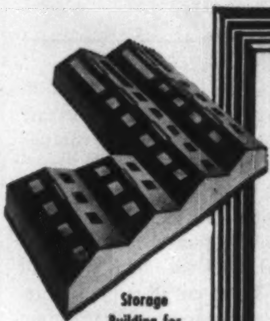
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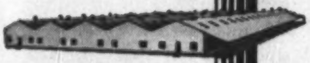
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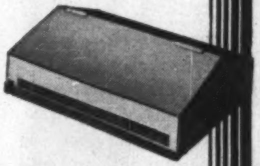
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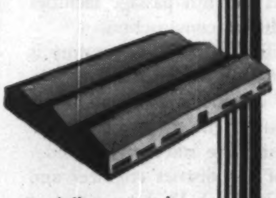
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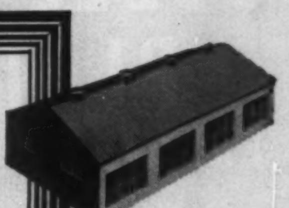
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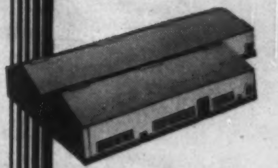
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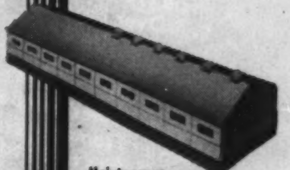
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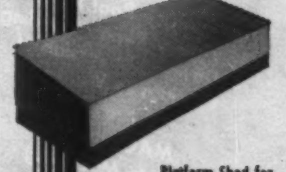
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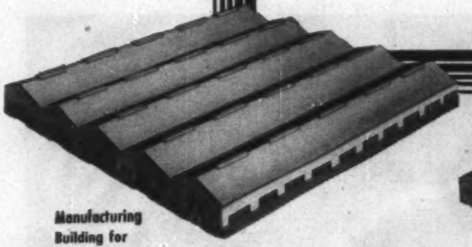
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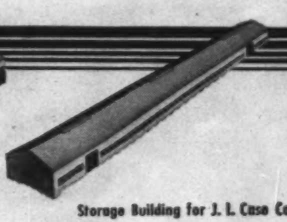
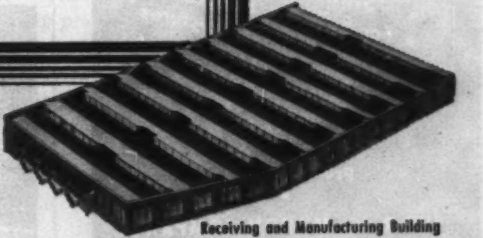

Storage Building for J. I. Case Co., Racine, Wisconsin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occasions where divers will have to be sent down to look at the fill.

The Dalles Dam is a project of the Portland District, Corps of Engineers. District engineer is Col. Jackson Graham, who has recently replaced Col. James U. Moorhead. Design carried out under the direction of Paul Thurber, chief of the foundation and materials branch. John Kemple is chief of the construction division, and H. B. Elder is resident engineer at the dam.

Design Aided by Hydraulic Model Studies

Feasibility of a closure method for The Dalles Dam was demonstrated by model studies at the Bonneville Hydraulic Laboratory, Bonneville, Ore.

Closure research was carried out on an undistorted model, built to 1:40 scale. Purpose of the research: (1) to determine method of placing rock in the river and (2) to find out what size rock would be needed. Hydraulicians have established through earlier work that there is a linear relationship in rock sizes between model and prototype; no adjustment has to be made in density of the model size rock.

Tests were made with quarry-run rock that in full scale would be up to 1,000 lb in weight and from 3 to 30 in. in size. This rock was found to be good for either the end placement or horizontal lift method.

First research on method was on the horizontal lift procedure, by which the closure dam would be built across the full width of the channel, gradually raising its crest until it rises above the river surface. Two methods of placing were tried: dumping by a high line and dumping from barges. Both methods proved feasible. But the cost and time for the end placement method was considered to be less. In the case of a high line, space is available for only one line. Thus processing rock by this method would have been laboriously slow. And in case of dumping from barges, space would have been limited and barge anchorages uncertain during high water. Big advantage of end placing is that, once the fill is part way out into the river, the contractor can work on other parts of the filling procedure needed for river closure.

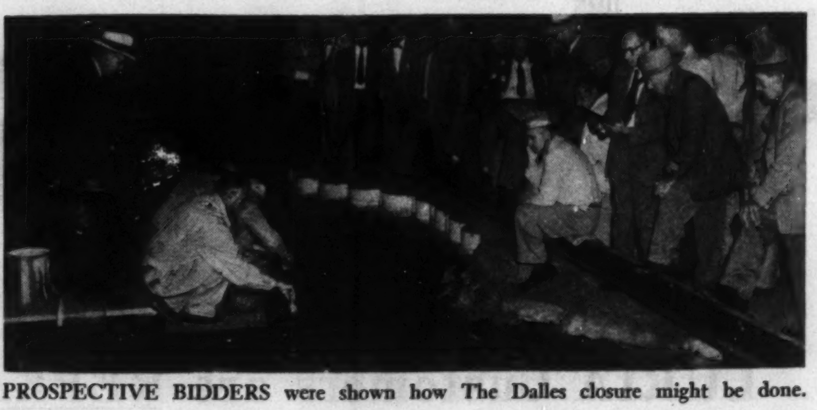
To show prospective bidders just how the end dump method would work the model was operated for groups of contractors on three days in late August, four weeks in advance of the bid date. And the model will be available for research by the successful bidder should he want it. All other models on The Dalles work are available in this same manner for contractors working on the project.

Biggest model now in existence at the Bonneville Hydraulic Lab is a 1:80 scale model of a 3-mile section of the Columbia River at The Dalles Dam. This was used for research on alignment of structures, required height of cofferdams, excavation problems, and general flow conditions. Perhaps the greatest saving in construction cost at The Dalles Dam resulted from a study of forebay excavation made on this model. Original plans called for excavating rock in the powerhouse forebay to El 70. The model study showed that the rock could be left at El 100 with no impairment of the hydraulic characteristics of the powerhouse and spillway. This in itself saved 1,500,000 cu yd of excavation.

Other model studies include:

a. Spillway and stilling basin characteristics
b. Hydraulics of the navigation lock
c. Navigation lock approaches
d. Approach flow to the powerhouse
e. Powerhouse fish collection system
f. Effect of pressure reductions on mortality of fingerling salmon (this permitted use of one piece spillway gates with significant cost savings in initial installation and in operation)
g. Surge action effect on fish
h. Navigation and fish passage facilities required during construction.

The Bonneville Hydraulic Laboratory is under the supervision of the Portland District, Corps of Engineers although doing work on Corps of Engineers projects in the entire Northwest. The laboratory is under the direction of the district engineer and is administered by M. J. Webster, chief of the hydraulics section of the design branch of the Portland District. Harry P. Theus is director of the laboratory.



PROSPECTIVE BIDDERS were shown how The Dalles closure might be done.

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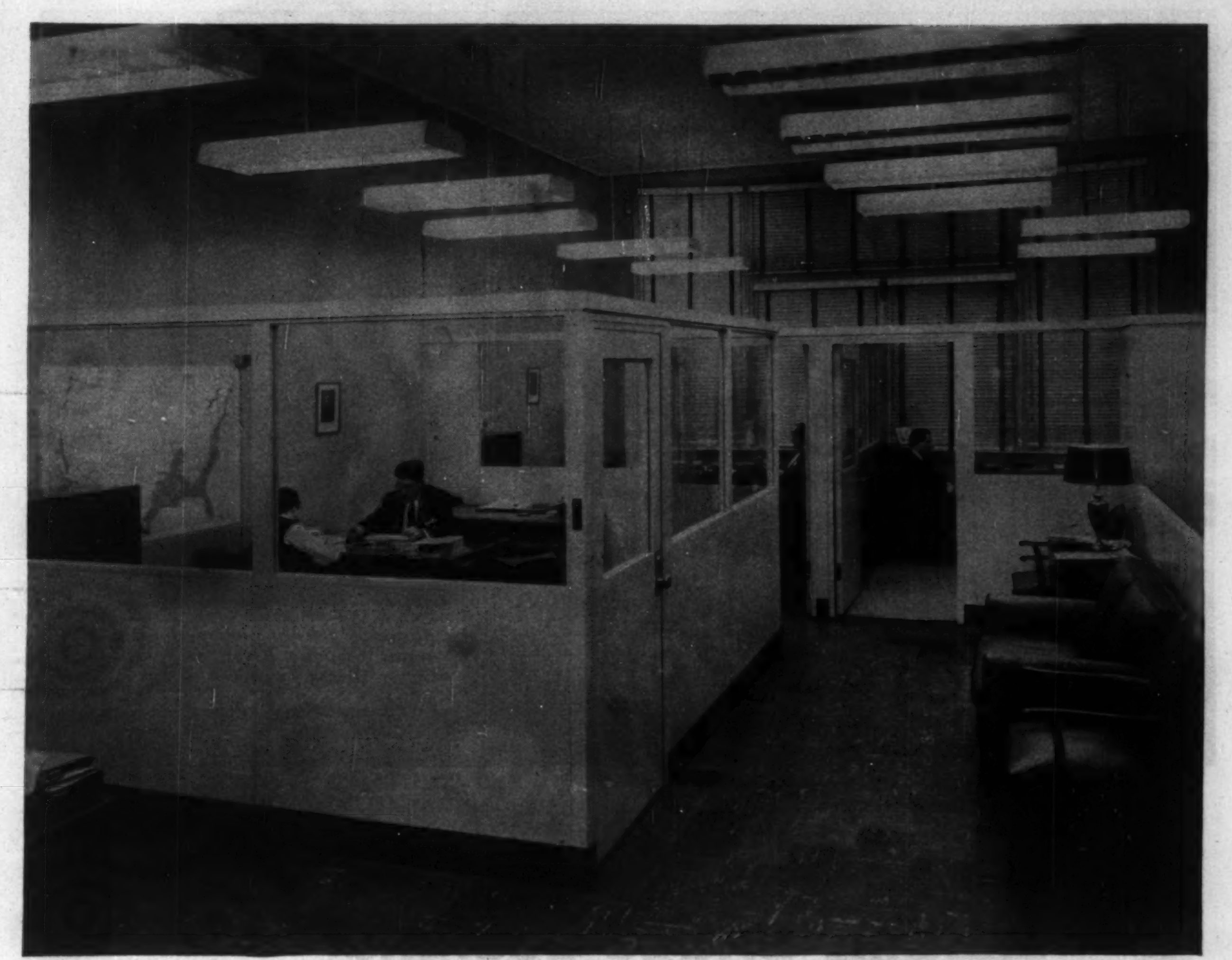

Installation: VMP MOBILWALLS for the Philadelphia Life Insurance Company at 111 N. Broad Street, Philadelphia, Pa.
Contractor: Fleming Company, 1717 Sansom Street, Philadelphia 3, Pa.

"VMP MOBILWALLS helped me meet a tight construction schedule"

Prompt delivery counts. This compliment from Charles J. Fleming, President of the Fleming Company, Philadelphia building construction firm, expresses the satisfaction that contractors feel when they deal with VMP. They can depend on fast deliveries. VMP MOBILWALLS always fit. No time is lost in erection with local VMP crews on the job.

VMP's metal movable MOBILWALLS slash installation time, keep that new look for years. Contractors everywhere are getting the word about the businesslike spirit behind VMP's erection and service crews. And warehouses have big stocks of metal MOBILWALLS available for immediate delivery.

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Subsidiary of Chesapeake Industries, Inc.

All-welded 100-foot Vierendeel span across Umpqua River, Douglas County, Oregon.

All-welded Vierendeel spans simplify bridge designs

FOUR spans incorporating all-welded Vierendeel girders provide simple, economical construction for three new bridges in Douglas County, Oregon.

Typical of construction is the 100-foot span shown above that provides a 19-foot, 6-inch clear roadway. The girders are 6 panels each with lower and upper chords 27-WF-94 beams. Floor beams are 24-WF-76 beams supporting five 12-inch stringers. Deck is open mesh steel.

Fast, low-cost shop fabrication of girders is accomplished with Manual Lincolnwelding of fillets in granular flux after tack welding with hand electrodes.

Construction of the three bridges supervised by Floyd C. Frear, Douglas County Engineer.

Studies in Structural Arc Welding available to bridge engineers and structural designers. Write on your letterhead to

Speeds fabrication *of trusses with semi-automatic welding of fillets with Manual Lincolnweld.*

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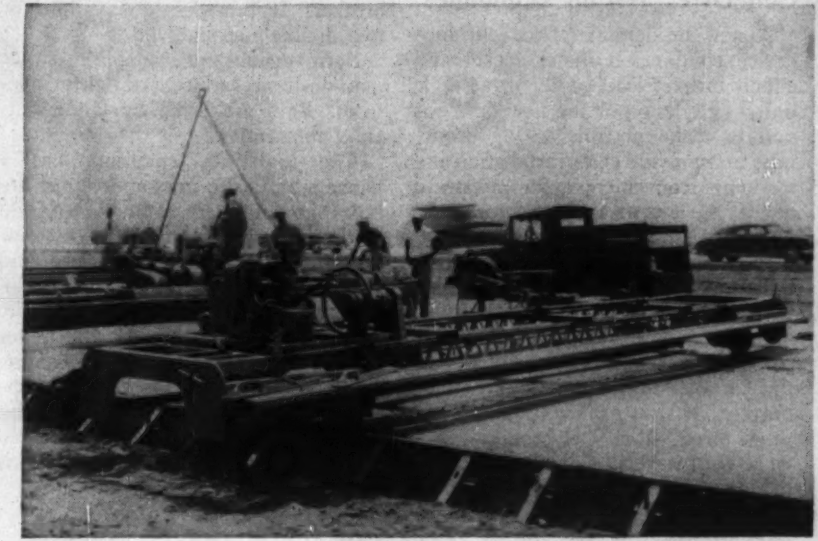

VIBRATING joint cutter reduces sawing time, cuts volume of filler required.

Joint Cutter Also Cuts Costs 70-80%

The next time a concrete paving contract comes up you might do well to look into the potentialities of the Vibro-Joint Cutter. According to the manufacturer of this unit, it combines the best qualities of hand-formed joints with those of sawed joints and at the same time effects substantial savings in costs.

Self-propelled, the cutter is operated by one man and follows immediately behind the longitudinal finishing machine. As it reaches the joint location, a T-shaped cutter bar is hydraulically lowered into the fresh concrete. As it enters, the bar is vibrated mechanically to cause the aggregates to separate. Continued vibration as the bar is lifted causes sand and cement mortar to be pulled back into the crevice formed. Hand finishers then take over to smooth the joint with their floats.

Although the finished surface shows no evidence of the machine's action, the aggregate remains parted and a few hours later the joint may be sawed. And here is where the action of the machine becomes most apparent. First, only a 1-in. cut needs to be made—compare this with the usual requirement of ⅙ the slab thickness. Second, since a weakened plane has been created due to the parting of the aggregate, inexpensive fiber abrasive blades may be used.

The result is a reported savings of 70 to 80% over orthodox sawing methods. In actual figures it means a joint cost of 6 to 8¢ a ft—including the cost of operating both the Vibro-Cutter and the concrete saws. These costs are based on actual operational experience in the Southwest and include labor, depreciation, maintenance and insurance expenses.

Another and obvious saving is the high reduction in the amount of joint filler required. On a 16-in. slab basis this method requires ⅓ less material than a typical T/6—⅙ slab depth—sawed joint and ⅔ less than a typical T/6 hand-formed joint. With joint filler prices running as high as 30¢ per lb, this is not an item to be overlooked.

A pilot model of the joint cutter has undergone testing at Abilene AFB in Texas under the supervision of the H. B. Zachry Co. of San Antonio. In this area of hard, abrasive aggregate, the company reported savings of up to 75% through use of the new method.

The first production model was sold to Pavement Controls Co., Inc. of Cleveland, Ohio. This company, which specializes in subcontracting the joint sawing and filling from the general contractor, has used the cutter at the Plattsburg AFB, Plattsburg, N. Y.

At present, two models of the machine are available. Model #25 is adjustable from 20 to 25-ft paving widths; Model #12 is adjustable for 12 to 13-ft pavings. Models of odd widths will be made available on special order. Delivery on standard models is approximately four weeks. THE VIBRO-JOINT CO., INC., COMMERCIAL BLDG., 1104 MAIN ST., DALLAS, TEX.

(*New Products continued on page 52*)

IT Costs Less TO Build Better WITH THIS Anco PAIR!

STRONGER . . . ⅝" dia. ANCO Structural Rib Bolts are stronger than ¾" dia. rivets. Shear and bearing values are greater than hot driven rivets. Minimum tensile strength 70,000 lbs. per sq. in.

FASTER . . . easier to install ANCO Rib Bolts and Lock Nuts. No special wrenches, pneumatic equipment, rivet guns or heat required in the field.

CHEAPER . . . just two unskilled men with a hammer and ordinary wrench make an ANCO installation team. No costly replacement of condemned rivets. Less expensive than any other type of bolted construction.

Anco STRUCTURAL RIB BOLTS

Carbon Manganese Steel. Standard A.B.M.A. Button or Countersunk Head. U. S. S. rolled threads. Simply hammer into place and it's ready to accept nut.

Open Hearth Carbon Steel. Guaranteed to break bolt in destruction test. Automatic Locking Feature, of Chrome Vanadium Steel with high percentage of Nickel, is integral part of Nut. Fits Standard Machine Bolts, too.

Anco LOCK NUTS

ANCO Structural Rib Bolts and ANCO Lock Nuts are finished Black, Galvanized, Cadmium Plated, etc. Galvanized to meet A.S.T.M. Specs.—hot dipped and subjected to Preece Tests.

ANCO Structural Rib Bolts and ANCO Lock Nuts are Approved and Used in All Types of Steel Construction; Buildings, Bridges, TV and Hi-Tension Towers, Oil Refineries, Hangars, etc.

ANCO Lock Nuts are also used on Standard Machine Bolts for bolted construction.

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120 Grand St., White Plains, N. Y.

Service Entrance Devices Can Offer Wiring Economies

A new residential service entrance device combines a meter socket and circuit breaker load center in a single unit. The design of the new device is said to make possible wiring economies and provide extra installation and servicing convenience for areas in which the electrical contractor is required to supply the meter socket.

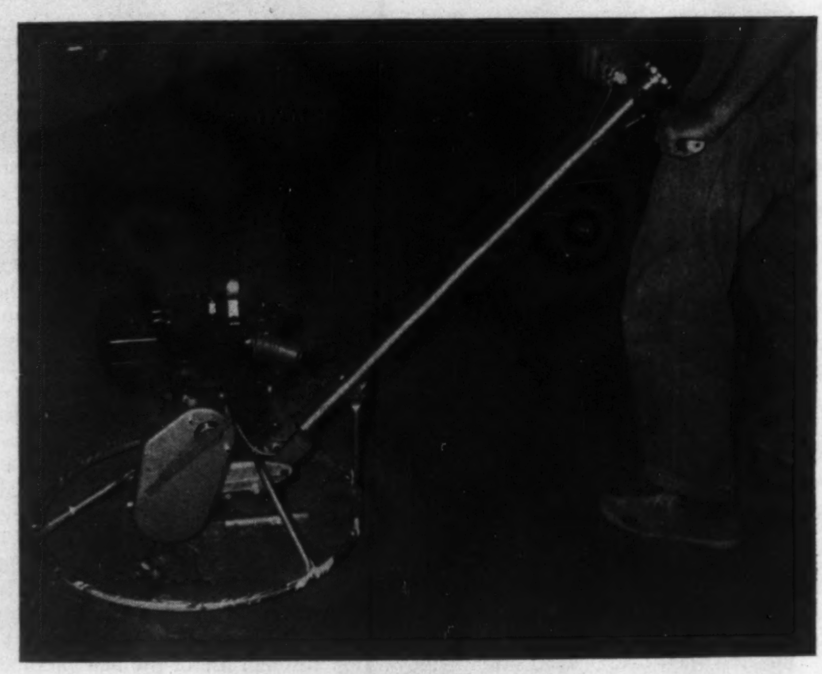
Two versions of the combination unit are available. One has a 50-amp, two-pole, common-trip main breaker wired in and provides six branch circuits; it can utilize one other two-pole breaker besides the wired-in main breaker. It is rated for 120/240-v ac, single-phase, three-wire service.

The other version is similar except that it is an eight-circuit device with mains rated at 70 amp, and the meter is wired directly to the load center bus bars rather than through a main breaker. It provides a maximum of two double-pole branches.

Both versions are available in either semi-flush or surface raintight enclosures. Both are listed by Underwriters' Laboratories.

The semi-flush enclosure has a flange around the sides and top of the box that can be nailed to the outside of the wall studding; then, the exterior building material, such as lath and stucco, is applied around the enclosure, and over the flange, leaving the raintight front portions of the meter socket and load center protruding through the wall. This allows for external installation of the meter and load center. Knockouts are located behind the flange and all wiring is concealed in the wall.

(*Continued on page 54*)



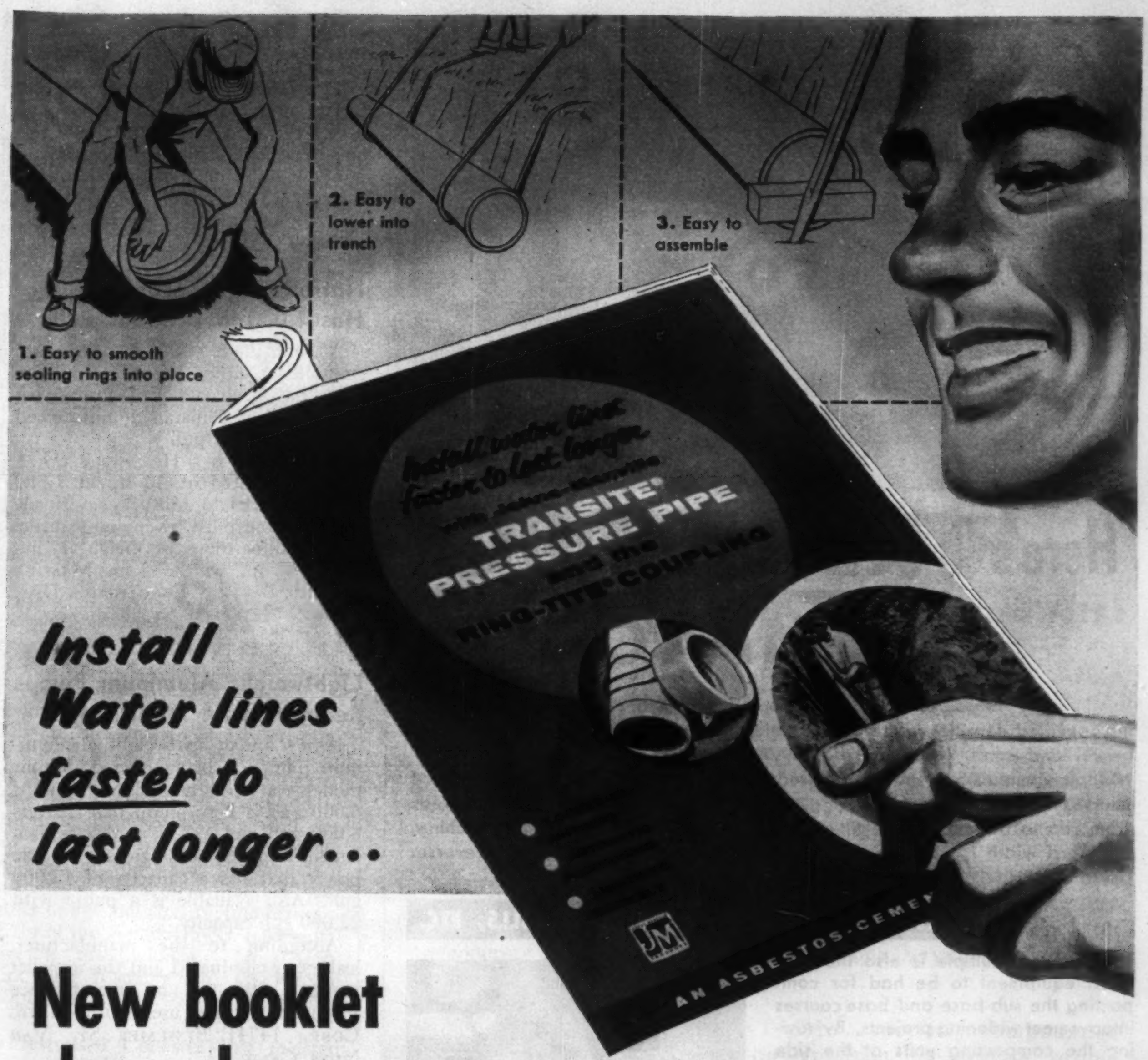
24-in. Trowel Is a Safe Lightweight

A new lightweight 24-in. rotary trowel, Model G24, weighs only 69 lb and can be moved around the job by only one man. Also, because of its light weight, it can be put on the job soon after laying concrete. A dead-man control stops the machine from rotating the instant the operator lets go of the handle, but does not stop the engine. This is accomplished by a spring-loaded clutch which is actuated by a leaf spring, controlled by a lever in the handle.

The trowel has a Briggs and Stratton engine rated at 2.2 hp and has a knob on the handle so that the pitch of the blades can be adjusted to any degree while the machine is in motion. Further, the handle is adjustable so that the operator can set the height to the most comfortable position.

The guard ring is stationary for safety reasons and to allow the operator to work up to walls and other obstructions. The belt, also, is guarded for safety. A hook on the top of the engine is provided for lifting to upper stories of buildings.

The combination trowel blades can be used for both floating and finishing by adjusting the pitch control knob. Stow Co., 19 Shear St., Binghamton, N. Y.


1. Easy to smooth sealing rings into place
2. Easy to lower into trench
3. Easy to assemble
Install water lines faster to last longer with Johns-Manville
TRANSITE® PRESSURE PIPE and the RING-TITE® COUPLING
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Install Water lines *faster* to last longer...

New booklet shows how Transite Pressure Pipe provides speedy assembly, trouble-free performance

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In a new 8-page illustrated booklet, you will find detailed information about Transite Pressure Pipe and about the Ring-Tite Coupling, that gives the ultimate in tightness in a pipe line that assures full, free flow of water under pressure. It shows why you can save assembly time every step of the way even in tough going . . . how fittings, valves and hydrants can be directly connected . . . why you get trouble-free, long-lasting service. Send coupon for your copy of this booklet today.

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Please send me your new booklet TR-160A, "Transite Pressure Pipe and the Ring-Tite Coupling."

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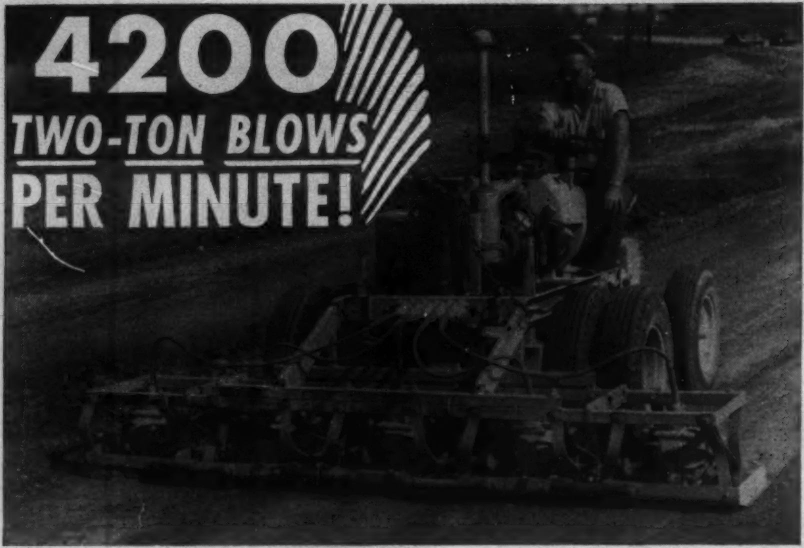
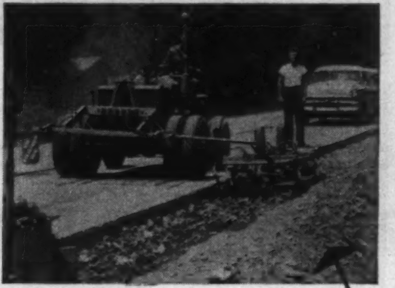


Here's TREMENDOUS COMPACTION

. . . for rapidly and most economically achieving or exceeding specified densities in the consolidation of rock, slag, soil-bound macadam, gravel and sand base courses. Only one pass of the Jackson Vibratory Multiple Compactor is usually required to thoroughly compact a full, standard course. Likewise, in rock and slag when sufficient fines are spread, all voids from top to bottom can be filled chock full with one pass of this machine. Standard width is 13′, 3″; working speeds: Up to 60′ per minute; reverse: Up to 5 MPH.

PAVEMENT WIDENING — LARGE AREA FILLS, ETC.

The Jackson Multiple is also the very finest equipment to be had for compacting the sub-base and base courses in pavement widening projects. By towing the compacting units at the side of the tractor, any granular material used for this purpose can be compacted to specified density in just one pass (compactor bases overlap). Large fills is another area in which this machine really shines. It's fast, thorough and very versatile; gets into places other machines can't reach. And for the really tight spots one or more of the compacting units may be detached, fitted with operating handle and used as a standard Jackson Manually Guided Compactor (self-propelling). By all means see this extremely advantageous equipment at your nearby Jackson distributor who has it both for rent and for sale. Distributor's name and literature on request.



The MULTIPLE on base course of a widening job 36″ wide, 9″ thick.
One of the compacting units fitted with operating handle and used individually.

JACKSON
VIBRATORS, INC.
LUDINGTON, MICH.

The other devices are the regular surface-mounted raintight type, and have a threaded hole in the top of the box to accommodate interchangeable raintight hubs for cable or conduit entrance. TRUMBULL COMPONENTS DEPT., GENERAL ELECTRIC CO., PLAINVILLE, CONN.

Narrow-Gage Locomotive Has 1,000-lb Drawbar Pull

A 2-ton diesel-powered locomotive, suitable for either 18 or 24 in. gage track has been designed for service where haulage demands do not exceed 1000 lb drawbar pull.

The engine is a Hercules 2 cyl, 4 cycle type rated at 30 hp at 1,800 rpm (sea level to 1500 ft elevation). Speed is controlled by engine throttle. Over-all dimensions are: height 47 in., length 88 in., width 39 in. MANCHA STORAGE BATTERY LOCOMOTIVE DIV., 4850 S. HALSTED ST., CHICAGO 9, ILL.

Lightweight Aluminum Pumps Require Little Manitenance

A new line of lightweight, all-aluminum pumps is being offered in four models—a 1½-in. model that pumps 6,000 gph, a 2-in. pump that delivers 8,000 gph and a 2-in. pump, with a larger impeller and greater engine power that has a capacity of 12,000 gph. Also available is a pump with 22,000 gph capacity.

According to the manufacturer, leakage is eliminated and the impeller requires little or no maintenance throughout normal use. MULTI-MATIC CORP., 14741 BESSEMER ST., VAN NUYS, CALIF.

Two-Foot Troffers Provide Clean Exterior Appearance

A new line of 2-ft wide troffers has been designed to provide a modern, trim ceiling effect. One of the features of the new troffer is that there are no catches, latches, hinges, screws or bolts visible to the eye.

Adaptable for installation in any type of ceiling designed for 24-in. troffers, this recessed lighting unit is supplied with or without integral trim flange. Further, a large selection of shielding media, from louvers and glass to plastic dish, is available. Louvers hinge from either side and can be completely removed without tools or loose parts. All glass and plastic shielding is completely enclosed in door frames, making it simple to remove for cleaning. SMITHCRAFT LIGHTING DIV., CHELSEA 50, MASS.

PUBLICATIONS

• **Rubberized Paving**—A 16-page illustrated brochure describes Rubarite, a new rubberized material produced specifically for use in asphalt and tar. Rubarite is made from a combination of unvulcanized synthetic rubber latex and minute particles of barytes, a chemically inert mineral.

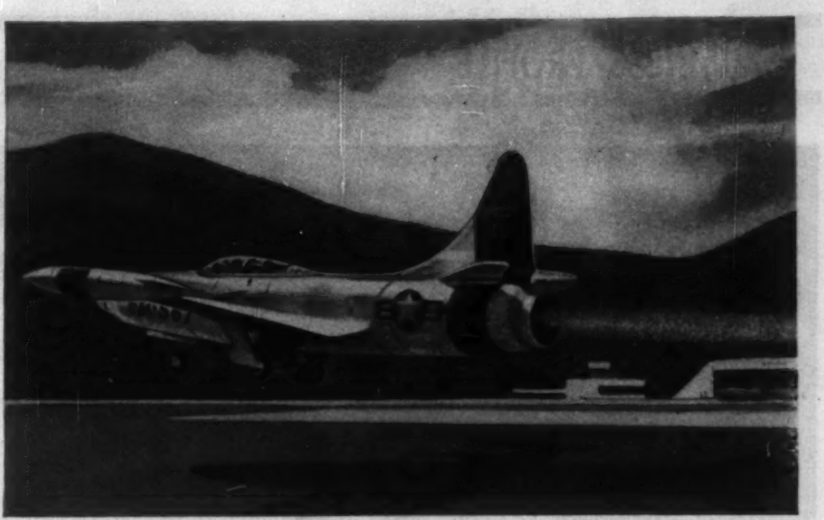
Three types of the rubberized material are being produced by the manufacturer. These include a paving grade for bituminous concrete, a mixing grade for rubberizing asphalt prior to its use and Rubarite jetlock for rubberizing tar for jet fuel resistant airfield surfaces. RUBARITE, INC, 141 W. JACHSON BLVD, CHICAGO 4, ILL.

• **Movable Walls**—"Space Control for School Buildings" is the title of a new folder which shows how movable walls are currently being used in schools and universities to cope with increasing enrollment, shifting curricula patterns, and changing educational techniques.

The folder features an installation in Dearborn, Mich.'s Edsel Ford Senior High School. Floor plans indicating the location of all partitions in the High School illustrate how they provide space control to meet fluctuations in enrollment. In addition to the basic theme of space control, the text describes the sound control advantages of the walls, their modern appearance, structural stability and other design and construction features. A list of the manufacturers' representatives is also included. THE MILLS CO., 956 WAYSIDE RD., CLEVELAND 10, OHIO.

• **Prestressed Concrete**—Just released are tables of loadings for LEAP prestressed concrete products. Included are double tee roof slabs, floor channels, bridge decks, piling and bleacher seats. LEAP, P. O. BOX 495, LAKELAND, FLA.

• **Steel Windows**—A 40-page catalog is available which describes steel windows for schools, hospitals, offices, institutional and public buildings. The catalog shows the manufacturer's complete line of windows including projected, awning, casement and combination windows. Tables of types and sizes, specifications, installation details, section details and information on uses, construction, hardware, screening and galvanizing are all covered. Numerous photos show typical installations. FENESTRA ARCHITECTURAL DIV, DETROIT STEEL PRODUCTS CO, 3159 GRIFFIN ST, DETROIT 11, MICH.



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FLINTBINDER* C-2 . . . a specially compounded hot-mix tar-rubber binder for jet fuel resistant flexible pavement. Used as surface course or overlay on asphaltic or portland cement concrete. (Meets Corps of Engr.'s specification for tar-rubber binder).

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"FLAT TOP" SMITH—this year's colorful NAHB president, heads an organization which builds 80% of U. S. homes.

NAHB grows bigger, develops more services, so . . .

Home Builders Move Into New Headquarters

J. P. Chamberlain
Associate Editor

This week, the biggest organization in the construction industry opened up a fancy new Washington headquarters. It's the National Association of Home Builders' Housing Center, an eight-story structure of brick, granite, and glass located a few blocks from the White House.

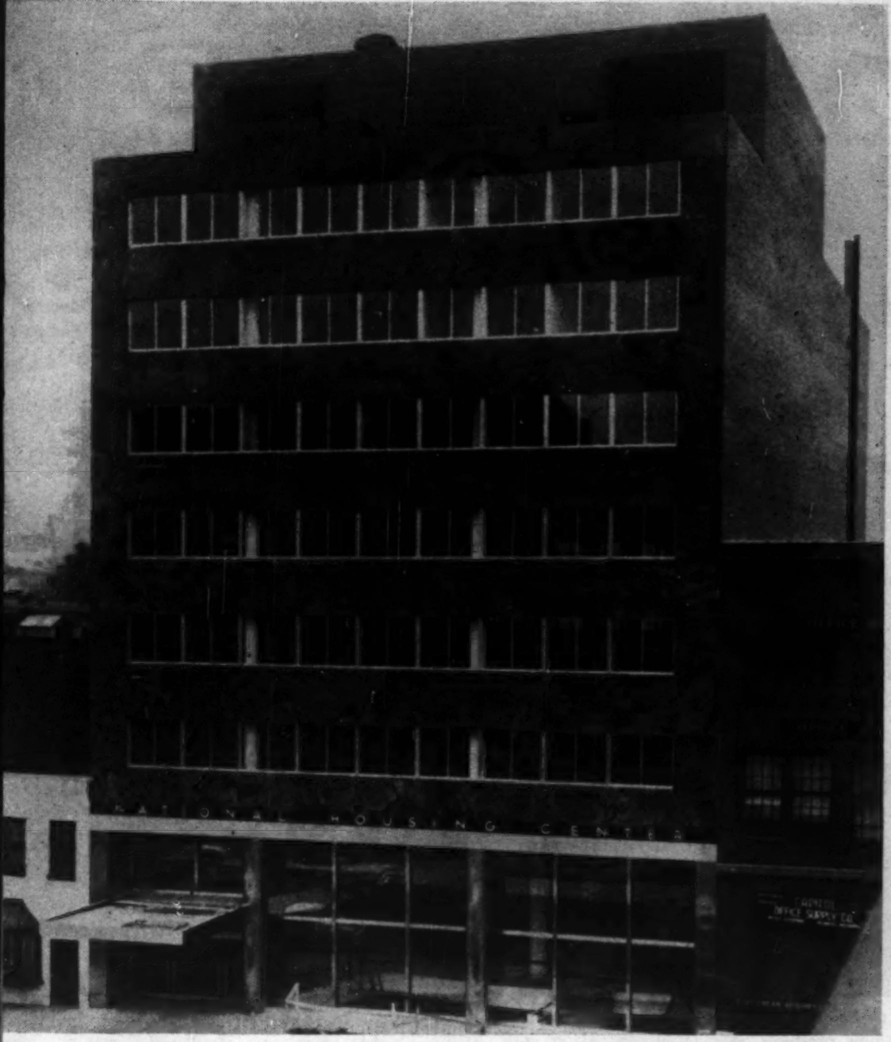
In a way, the National Housing Center symbolizes a change that has gradually taken place in NAHB during the past few years. At first, it was a powerful lobby; now it is also a service organization for homebuilders.

As of now, for instance, NAHB has a Research Institute working on specific projects to help home builders, such as the Air-Conditioned Village in Austin, Texas, and the Gypsum Village in Chicago. Its Construction Department works with builders on field problems, and with FHA and VA on regulations covering new designs. It has encouraged members to swap their trade secrets with each other. It conducts mortgage clinics, and gives short courses on business management. It is working on revision of building codes, and on slum rehabilitation. It gives advice on labor problems, studies business trends, and is working to fill the many gaps in housing statistics.

This emphasis on service activities is shown by the floor layout of the Center. The two top floors are office space for NAHB, and the other six floors are exhibit space for manufacturers of materials and equipment. There is some free exhibit space for new products. The exhibits are for the general public, as well as for builders and architects.

• A single showcase – When the Housing Center was first planned five years ago, the original idea was to provide more office space for the expanding NAHB staff. Then some members, who had seen the Netherlands' Bouwcentrum in Rotterdam, suggested that the original plan be expanded to bring together in one showcase the ideas, materials, and technical information that would enable builders, architects, and home buyers to pick the best available components and designs for whatever they might have in mind.

EXECUTIVE DIRECTOR John Dickerman started as contact man with Congress.



THE CENTER—located a few blocks from the White House, NAHB's National Housing Center is planned as showcase of ideas, materials, and technical information.

To carry this out, NAHB is assembling a comprehensive reference library, plans a series of special exhibits, and a continuing series of seminars on the various aspects of home building. The Center has an auditorium for 250 people, plus seminar rooms for smaller groups.

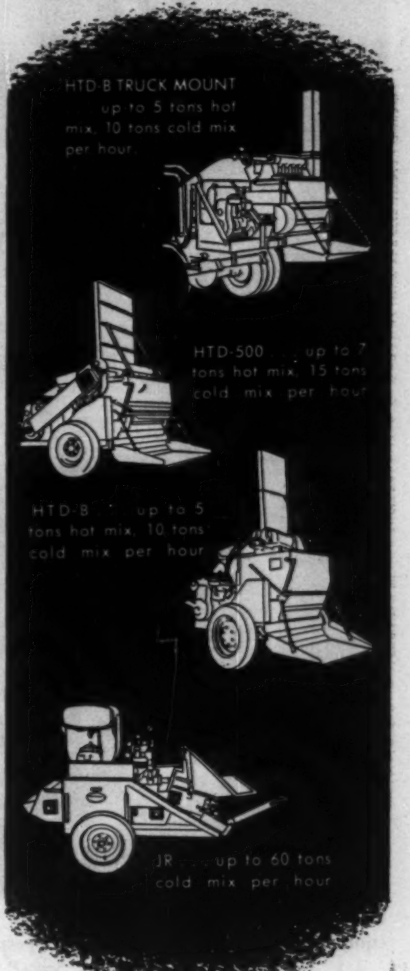
- **How it began**—This modern headquarters is a long way from the beginning of NAHB in 1942, out of the home builders division of the National Association of Real Estate Boards. Members of that parent division had been active in framing the legislation that set up the federal savings & loan system, and later the Federal Housing Administration. These new institutions, of course, have had a lot to do with the postwar housing boom.

By 1940, however, it had become clear that an organization separate from NAREB would have a broader attraction for builders. In 1942 the Home Builders Institute got complete autonomy from NAREB. Several months before, it had set up an Emergency Committee to stop the government from shutting off private home building completely during World War II. For the first time, there was a very obvious need for a national organization. In fact, a group of anti-NAREB builders had already formed a separate National Home Builders Association.

- **War problems**—In late October of 1942, while negotiations were going forward to merge the two groups in an organization independent of NAREB, the War Production Board suddenly shut off private priorities for war housing. The Emergency Committee was meeting in Washington at that moment; and it acted so

(*Continued on page 58*)

McConnaughay
ASPHALT MIXERS


HTD-B TRUCK MOUNT . . . up to 5 tons hot mix, 10 tons cold mix per hour.
HTD-500 . . . up to 7 tons hot mix, 15 tons cold mix per hour
HTD-B . . . up to 5 tons hot mix, 10 tons cold mix per hour
JR . . . up to 60 tons cold mix per hour

. . . for resurfacing and patching in any season

Designed for economy of operation and fast production, the McConnaughay line of Asphalt Mixers meets every need for most resurfacing as well as all types of pavement patching. Working on location, McConnaughay HTD Mixers provide the *exact amounts* of materials needed and effectively remove both moisture and solvents from bituminous mixtures . . . positive assurance that patches and resurfaced areas will set up hard. For details and specifications on the mixers above and on the JR and HTD-LP models (not illustrated), write, wire or 'phone . . .

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3929 Buell Drive, Fort Wayne, Indiana
National distributors for
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PRECISION
FOLDI

SIX FLOORS OF EXHIBITS. Most of the center is exhibit space for materials and equipment. There will be some free space for new products.

. . . They Needed a National Group

effectively that WPB's order was rescinded five days later.

By this time the Home Builders Institute had already incorporated itself under the new name of National Association of Home Builders. NAHB and the National Home Builders Association merged some months later, in mid-1943. The merged group started out with about 1,300 members and with Frank Cortright, who had been executive secretary of the old Emergency Committee, as executive vice-president.

• **Postwar growth**—Though building was not at boom levels during the war, more and more people in the industry began to realize what a national organization meant to them. By V-J Day, NAHB had about 8,000 members. In the years since, as building zoomed, membership has climbed steadily to the present total of 33,000. About half of these are builders, who handle about 80% of non-farm home-building. The other half are associate members, connected closely with the industry as suppliers, subcontractors, mortgage men, and others. And any observer of home-building in the postwar years can testify that the national organization has done a good job of getting government support for a high level of home starts.

• **Structure** – NAHB is based, of course, on its state and local affiliated organizations, which are largely autonomous and have their own dues setups. There are organizations in 43 states—about 230 of them. There are also about 500 builder-members at large, who operate in areas where there are no state or local groups.

The associations elect national directors on the basis of membership—about 400, with an equal number of alternates. These directors take office at NAHB's annual convention each January in Chicago, when they elect the national officers. Most of the members also show up at the annual convention—about 25,000 of them this year. But that's only the start of the meetings an active member attends. Says one of NAHB's staff: "It's the meetingest association there is."

• **Meetings**—Besides the annual convention, the full board of directors have spring and fall meetings to decide on policy. And if they are active on one of the 22 directors' committees, they have occasional committee meetings. Most of the committees have a direct connection with one of the departments of the permanent staff.

Also, in addition to the state and local meetings, there are several regional meetings each year. At these meetings, NAHB staff and qualified members conduct mortgage clinics, give help on technical problems, conduct courses on business management, and aid with local builders' programs.

• **Core**—The center of NAHB, of course, is its officers, executive committee, and permanent staff. Officers—president, two vice presidents, treasurer, and secretary—take office at the end of the January convention. Along with the outgoing president, and 11 members appointed by the new president, they form the executive committee. Frank Cortright, who retired as executive director in 1953, and Nathan Manilow, a past president, are honorary members.

Because the board of directors is so large, the executive committee has considerable influence as a steering group. It usually has about three interim meetings a year to make plans for the directors' meetings, and to decide immediate problems. At the three meetings of the full board of directors, the various directors' committees submit recommendations in their special fields to the full board. Regional vice-presidents for each of 20 regions keep the national organization's field services in touch with the needs of the state and local groups.

• **Earl Smith**—The "meetingest" man in NAHB is of course its president, who this year happens to be Earl Smith, the California builder who's usually called "Flat Top" because of

(*Continued on page 62*)

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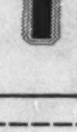

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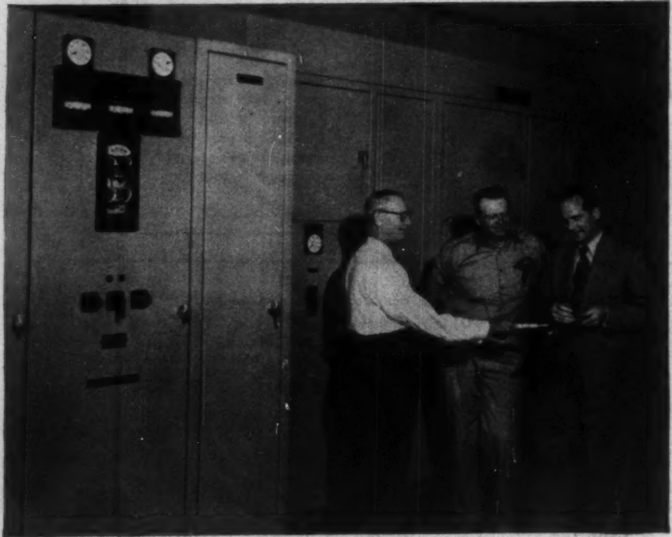
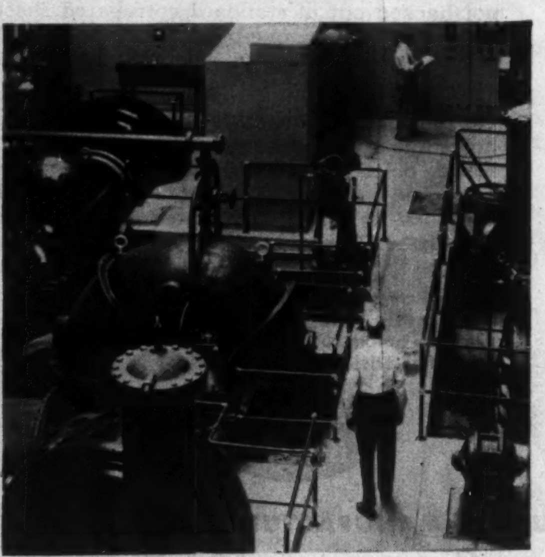
REPORTS:

MILLIONS OF DOLLARS worth of crops in Reclamation District 108 depend on reliability of G-E pump drives and controls for vital irrigation. Aerial view shows Riggs Ranch automatic pumping station, one of several serving district.



RELIABILITY of G-E metal-clad switchgear and Limitamp control helps assure continuity of service at El Dorado station. Harold Wood, consulting engineer; Kenneth Brown, District 108 manager (l-r) planned installation with L. S. Barry, G-E Sales Manager.



42 YEARS OF SERVICE is the outstanding record of five General Electric 650-hp motors, several of which are visible above, in Rough and Ready pumping station. Limitamp control in background was added in 1949.

58,000-acre irrigation project proves performance, reliability of G-E equipment and service

Dependability of G-E equipment and service "could not be better" says Kenneth R. Brown, manager of Reclamation District 108 of Calif.

Reclamation District 108, a co-operative of individual farmers in Colusa and Yolo counties of California, electrified its irrigation pumping system half a century ago. It has been General Electric's privilege to provide most of the electrical equipment for this model project over the years.

"We can count on G.E.—we've learned that from experience," say Blackie and Wood, consulting engineers of San Francisco, who specify G.E. 100 per cent in expansion and modernization of the District's system. And manager Brown adds, "Both the products and the service we get from G-E Sales and Service Shop people could not be better."

Proved in service at the several pumping stations on the Sacramento River which comprise District 108 are 55 G-E pump motors from 25 to 650 hp, and many units of G-E control. Built for long operating life, G-E Tri-Clad* motors at automatic pumping stations require little or no maintenance. G-E Cabinetrol* and Limitamp* control panels help protect circuits, give centralized motor control, are custom-assembled from pre-engineered components to save engineering and installation time at the site.

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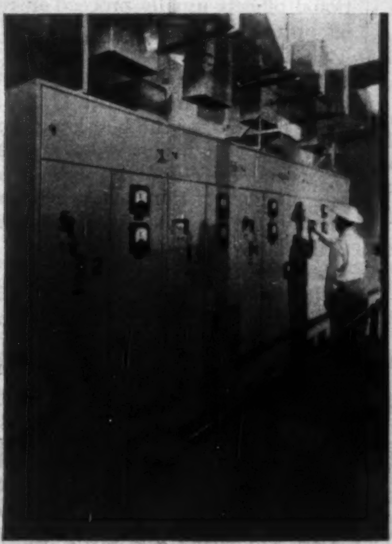
MINIMUM MAINTENANCE has been needed by this G-E 100-hp vertical pump motor over many years of service at the Boyer Bend automatic pumping station.



FACTORY ASSEMBLED to save installation time, this G-E Cabinetrol assembly controls five G-E synchronous motors at the Wilkins Slough pumping station.

HIGH DEPENDABILITY is typified by this G-E motor, one of three, slant-connected to pumps on riverbank, which have operated five years with no outage.

his characteristic low-cost contemporary home style. Like the presidents before him, Smith finds he is spending half or more of his time on NAHB business, shuttling between his home in El Cerrito, Washington, New York, and other big cities. By the end of the year, he will have spoken several times in most of the 20 regions. Many of the other officers and committee chairmen also spend a sizeable amount of time with NAHB affairs.

• Why do they?—Its an interesting question why Smith and other NAHB officers—or the leaders of any big trade association—are willing to spend so much time away from their own business affairs. Probably the best answer is that they enjoy the recognition that they have reached the top in their profession.

Smith is one of the biggest builders in the U. S., one of the few men in the industry known to a wide public. He is an unusual character even in a business that's full of individualists. For one thing, his father, grandfather, and great-grandfather were builders before him. He went to work for his father at 14 as a full-time carpenter, and studied drafting. For a while, he was a professional actor on the side. In his earlier days as a builder, he frequently did some of the carpentry on his houses, and still does his own design.

• Broke the succession—Earl Smith's election last January broke the regular line of succession by which the national officers usually proceed in regular order to the top spot. His "Shop Talk" sessions on construction technique at national conventions and local meetings around the U. S. had made him one of the best-known men in NAHB. He had served as chairman of several directors' committees, and as a member of the executive committee. At the time he was elected president, he was board chairman of the Research Institute.

It is natural that with a new president each year, organization policy will change somewhat to reflect his major interests. Smith, for instance, is primarily interested in the technical aspects of construction. Dick Hughes, the 1954 president, devoted himself largely to federal legislation and the mortgage market, as did Manny Spiegel, his 1953 predecessor. In 1952, Alan Brockbank had spent much of his time attending to the business of promoting slum clearance.

Both before and during his presidency, Smith has probably done more than any other individual in the industry to focus builders' attention on the problem of community facilities—schools, sewers, water, drainage, roads, and recreation areas. Smith views this problem as the toughest now facing home builders. But he feels they should solve it in co-operation with local communities.

"We builders will cooperate to the utmost," he said recently, "so that communities can intelligently set about planning and accomplishing the comprehensive programs required to meet the immediate and long-range needs of their citizens."

• Chief of staff—An important factor in maintaining continuity of NAHB's many activities is NAHB's 41-year-old executive director, John M. Dickerman. He started in 1947 as legislative director, keeping the industry in touch with Congress and the executive agencies that have to do with housing. Before that, he had been Washington representative and general counsel of the Air Line Pilots Association. In 1953, Dickerman took over as executive director on Frank Cortright's retirement.

When Dickerman started in 1947 at NAHB, in addition to legislative contacts, he also had under his wing mortgage finance, slum clearance, and housing economics. Since then these sidelines have blossomed out into separate activities, with full-time directors of their own. Early in 1953, a separate department was set up for slum clearance and neighborhood improvement. A separate education department was set up in the same year to provide civic and social groups (as well as local NAHB associations) with program ideas, pamphlets, visual aids and other services. The mortgage finance and economics departments were established last year.

• Growing—These activities are expanding as NAHB membership grows. Dickerman predicts that membership may reach 50,000 by the end of the 1950's. And he says he wouldn't be surprised if the industry were building 2,000,000 homes a year by the late 1960's, when the babies of the post-World War II boom start setting up homes of their own. He's confident that the industry is bound to keep growing.

"We're in the enviable position," he says, "of finding that this growth is good for the country while at the same time being good for our industry."

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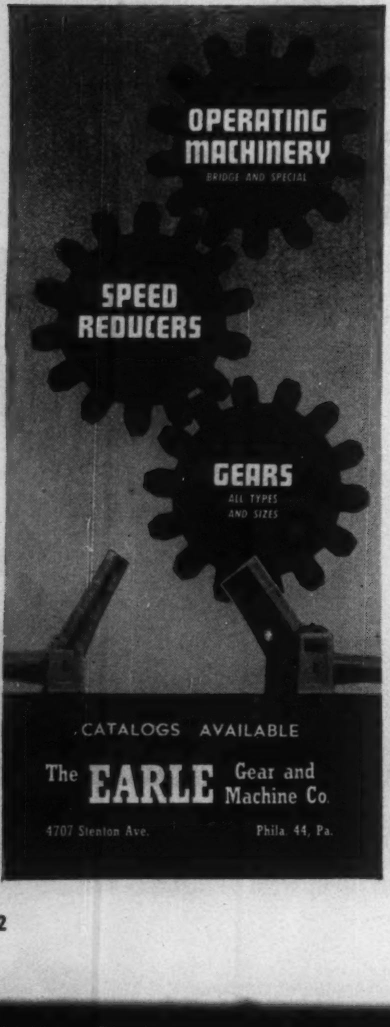

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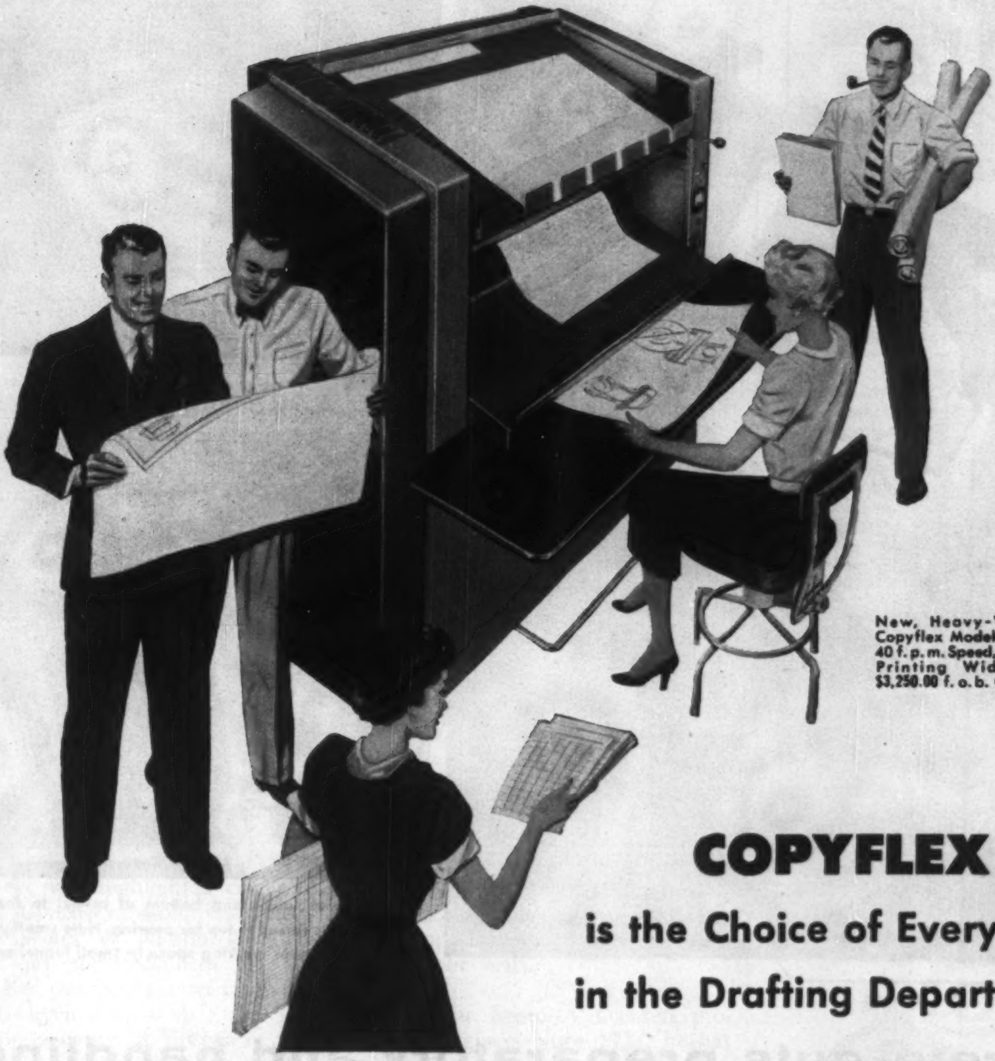

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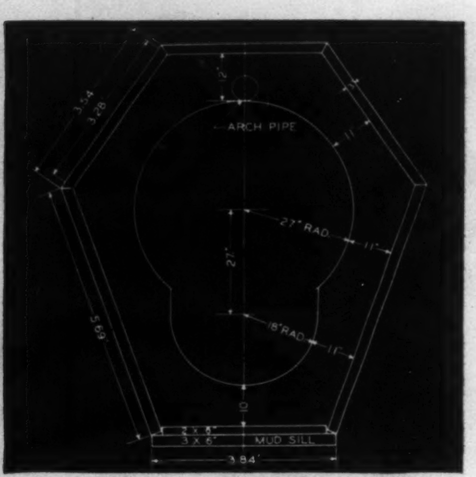
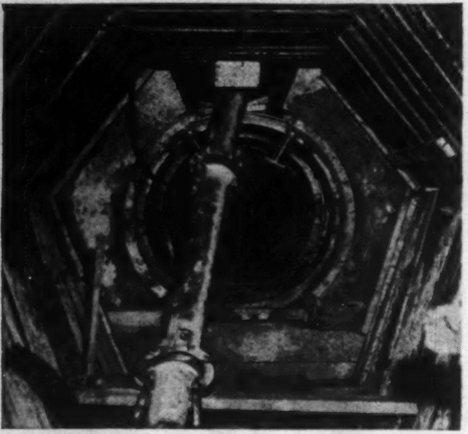


Here you see a cross section of the tunnel showing construction and measurement details.



Pipeline was laid along bottom of tunnel to forms where it was raised to top for pouring. Note small pipe allows maximum working space in small tunnel area.

Pumpcrete® cuts preparatory and handling costs on Milwaukee sewage tunnel

Above you see the entrance shaft to a 3300-foot concrete tunnel being constructed for the Milwaukee Sewerage Commission by J. W. Lazynski, Inc., Milwaukee contractor. The concrete for this tunnel was placed by Pumpcrete, the pump that pumps concrete by pipeline.

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The Pumpcrete machine, a Model 160 Single, was located on the surface near the entrance shaft where it was charged by truck mixers. The pipeline was directed down the entrance shaft and along the tunnel bottom to the forms where it was raised to the crown through 45° bends.

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Long experience with Pumpcrete has taught the Lazynski organization the economy of placing tunnel concrete by pipeline. Pumpcrete not only packs the arch tighter, but handles the concrete faster and cuts expensive preparatory work so necessary with hand-placing methods.

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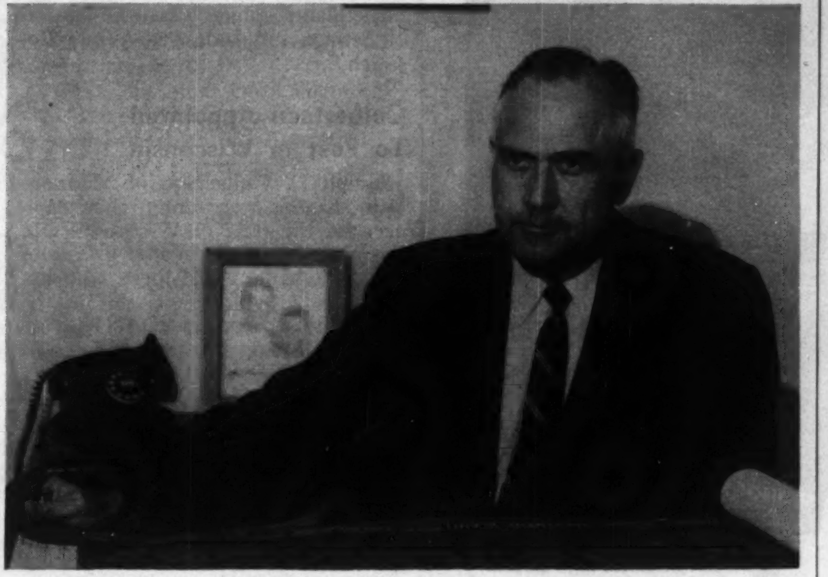

G. W. Martin: 20 years at Green Bay earns . . .

Recognition as FSIWA's 16th President

Installation as 16th president of the Federation of Sewerage and Industrial Wastes Associations at its 28th annual meeting in Atlantic City next week will highlight a career of almost 30 years in sanitary engineering for George W. Martin, chief engineer and superintendent of the Green Bay metropolitan sewerage district in Green Bay, Wis.

Martin, a native of Wisconsin, was hired for his Green Bay job in 1935 and has spent the subsequent two decades as energetic guardian of the city's sewerage and treatment facilities.

He was educated at the University of Wisconsin from which he received a BS (1926) and a civil engineering degree (1935). Until he came to Green Bay, he was employed by private firms on paving, sewers, sewage treatment plants and water works installations, as resident engineer and later as design engineer.

• **Expansion** – Thoroughly familiar with the sewerage facilities of the city as a result of his earlier affiliation with Jerry Donohue Engineering Co., which had designed nearly half of the Green Bay system, Martin has chalked up these accomplishments: Doubling the mileage of intercepting sewers, doubling the capacity of the primary treatment plant and quadrupling the sludge digestion capacity.

His district recently completed construction of a new intermediate sewage treatment plant equipped with high-rate filters.

From 1937 to 1952, Martin also served as a member of the Green Bay water commission and was its president for 14 years.

• **A familiar figure**–A licensed professional engineer since 1932, he has been active in engineering association work, and during the past 15 years has held directorships in the Wisconsin Society of Professional Engineers, the FSIWA (of which he's now vice president) and the National Society of Professional Engineers.

He has been president of the Conference of Wisconsin Sewerage Works Operators, the Central States Sewage and Industrial Wastes Associations, Wisconsin Society of Professional Engineers and the Green Bay Engineers' Club.

Martin is a familiar figure on the dais of Central States Conference meetings and has written and published a number of technical articles. He has received both the Kenneth Allen and William Hatfield awards for his achievement in the field of sanitation.

At the Oct. 10-13 Atlantic City meeting subjects will range from "Acid Mine Drainage Problems" to "The Use of Radioactive Isotopes in Deter-

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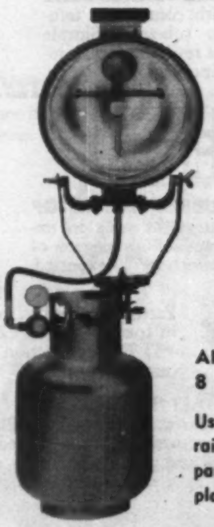

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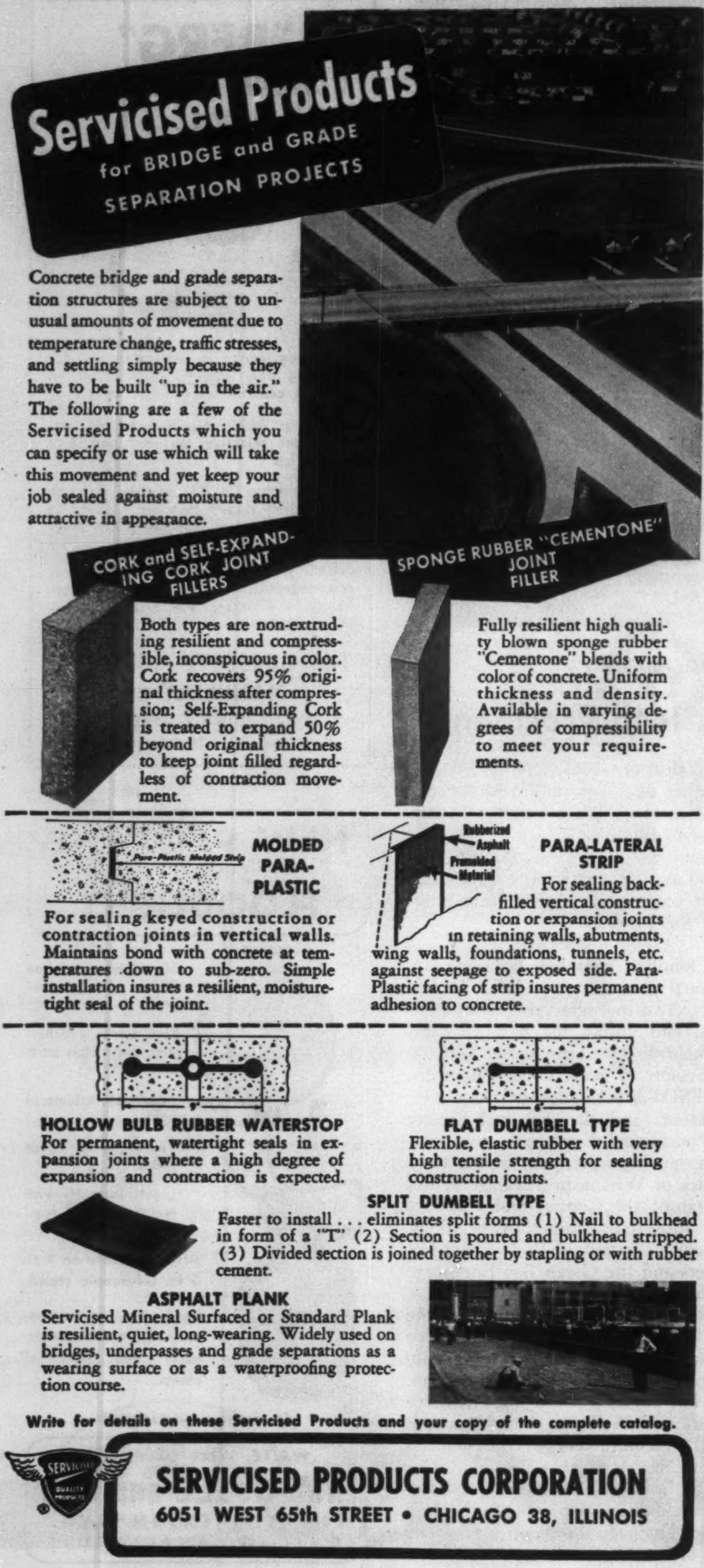

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mining Flow Patterns in Lagoons," and from "Thru-way Sewage Treatment Plants" to an "Open Discussion of Sewage and Industrial Waste Research."

Culbertson Appointed To Post in Wisconsin

Ralph D. Culbertson of Madison, Wis., has been appointed chief engineer for the state of Wisconsin. He was named by Gov. Walter Kohler to succeed Charles A. Halbert, who has retired.

Halbert had been in state service for nearly half a century and had served as chief engineer for the last 28 years. In addition to supervising the design and construction of over $100 million dollars worth of state buildings, he has also had charge of building maintenance.

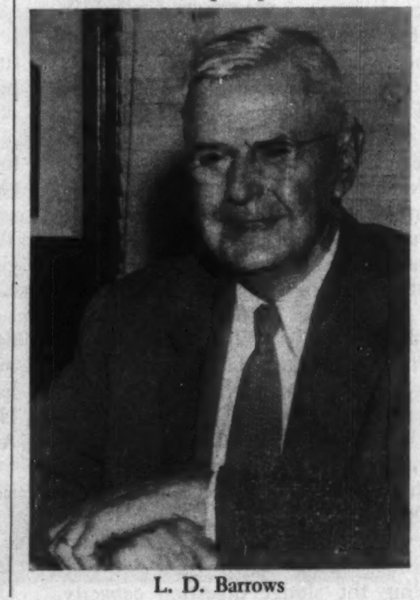
The new chief engineer is a civil engineering graduate of the University of Wisconsin and was formerly division engineer for Chicago & North Western Railway.

Lucius D. Barrows Retires From Maine Highway Post

Lucius D. Barrows, chief engineer of the Maine State Highway Department, retired last month, after 45 years of service to the state. His successor is Vaughan M. Daggett, former assistant chief engineer.

Barrows graduated from the University of Maine in 1907 and worked for the Federal Bureau of Public Roads before joining what was then the roads department of the state. He was appointed chief engineer in 1928.

A member and past president of the



L. D. Barrows

Association of Highway Officials of the North Atlantic States, Barrows is secretary of the Maine Good Roads Association, secretary and treasurer of the Maine Turnpike Authority, chairman of the Board of Registration of Professional Engineers and president of the Maine chapter of ASCE.

Daggett, the new chief engineer, joined the highway department in 1930 and had served as assistant chief engineer since 1951.

M. J. Kahula Appointed To State Housing Post

Michael J. Kahula of Brooklyn, N. Y., has been appointed chief construction adviser to the New York State Division of Housing.

He will coordinate the supervision of housing project construction in New York City financed by the state's $935-million slum clearance and low rent housing loan fund, as well as housing developments to be built by private housing companies under terms of the new state limited profit housing law.

For the last seven of his 25 years in construction work, Kahula has been superintendent of construction for the New York City Housing Authority in charge of state-aided housing projects.

Named Highway Consultant

President Eisenhower has appointed Henry W. Osborne, traffic engineer for the City of Buffalo, N. Y., as federal consultant on highways. A native of Litchfield, Conn., Osborne has been granted a year's leave of absence from his work at Buffalo and assumed his new duties on Sept. 30.

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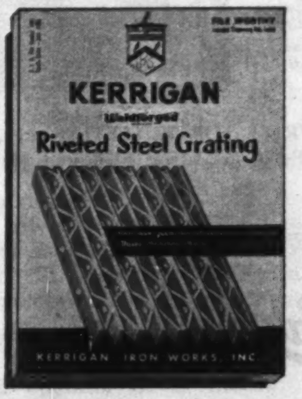
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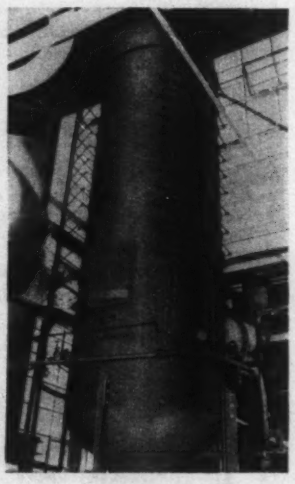
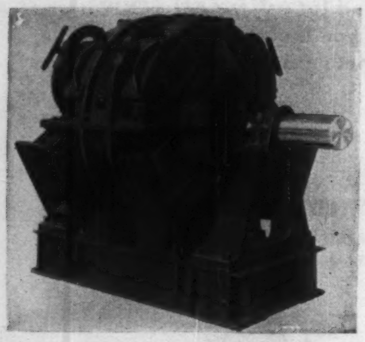


"Buffalo" Hydraulic Scrubbing Tower



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BUFFALO FORGE COMPANY
163 MORTIMER STREET BUFFALO, N. Y.
PUBLISHERS OF
"FAN ENGINEERING" HANDBOOK
Canadian Blower & Forge Co., Ltd.
Kitchener, Ont.
Sales Representatives in all Principal Cities

VENTILATING AIR CLEANING AIR TEMPERING INDUCED DRAFT EXHAUSTING
FORCED DRAFT COOLING HEATING PRESSURE BLOWING

Men and Jobs Briefs . . .

- **Associations**—At its first regular meeting, the Tri-State Structural Steel Fabricators Association, embracing Pennsylvania, Ohio, and West Virginia, elects **O. E. Guibert** (Guibert Steel Co., Pittsburgh) as president . . . **Roger H. Corbetta,** president of Corbetta Construction Co., Inc., is re-elected chairman of the Concrete Industry Board, Inc. of New York City.

The Kentucky-Tennessee sections of the American Waterworks and the Industrial Waste and Sewage Works Associations name new presidents: **Justin J. Davis** of Memphis succeeds **J. Stephen Watkins** as AWWA head and **Charles M. Davidson** of Chattanooga takes over from **Robert J. Johnson** in IW&SWA.

- **Corps of Engineers**—In a recess appointment, President Eisenhower appoints **Col. John L. Person,** division engineer in Cincinnati, a member of the Mississippi River Commission, succeeding **Maj. Gen. Charles G. Holle** . . . **Sam D. Burks,** with the corps for 16 years and last assigned as assistant project engineer on Folsom Dam in California, joins the Dewey and Almy Chemical Co., division of W. R. Grace & Co., to direct sales of construction specialties products to the concrete industry.

Reassignments within the Vicksburg, Miss., district, resulting from a shift in construction activities, include: transfer of **R. M. Hamberlin,** Monroe assistant area engineer, to the Greenwood area office as superintendent of construction and maintenance, succeeding **George Hammitt,** who moves up to Grenada, Miss., Dam as resident superintendent. Hammitt replaces **John D. House,** who goes to Enid, Miss., Dam as resident superintendent, succeeding **Jesse C. Shanks,** who goes to Vidalia as area inspector.

- **Careers**—Executive director **L. E. Ordelheide** resigns from the Metropolitan St. Louis Sewer District of St. Louis and St. Louis County, Mo. and is succeeded by **Clifford Mitchell,** former director of sanitation in the St. Louis County Health Department . . . **Harry Glisch,** former deputy building inspector, is appointed Milwaukee building inspector, filling the vacancy left by retirement of **Leon M. Gurda.**

George L. Ramsey is named city

Five to 6 passes by the 1¾-yd. shovel fill Rear-Dump to heaped capacity. In making change-over from scraper to rear-dump, same tires, wheels, brakes, and controls are used.

Alabama contractor shows how to get "double value" from each dollar of equipment investment

"Interchangeability" has a powerful meaning to Clyde O. Mitchell, Birmingham. It's the way he assures himself "double value" from his versatile C Tournapulls.

For dirtmoving, Mitchell hitches 14-yd. scrapers behind his 2-wheel "C" prime-movers. Whenever he encounters shovel rock, he switches scraper bodies for rear-dumps to handle this problem. The ability to switch to rear-dumps eliminates added ownership or rental expense of trucks, reduces maintenance cost as well as equipment and parts inventory, and permits operation under weather and haul road conditions that would shut down truck operation.

Double duty means added profits

Mitchell has made extra profits twice so far on important jobs because of this quick-change feature of his C Tournapulls.

First double-duty assignment was a state highway improvement job at Decatur, Alabama. On this job, the scrapers handled 800,000 yds. of dirt, while Rear-Dumps moved 100,000 yds. of rock.

Recently he relocated and straightened 4.1 miles of State Highway 431 between Attalla and Boaz. Here, of the 486,000 cu. yds. of material to be moved, about 16% was rock, 75% chert, and 9% clay. The dirtmoving was handled by two C Tournapulls with Scraper, three 18-yd. tractor-drawn FP scrapers, and three self-propelled scrapers of another make. The Tournapulls were then equipped with Rear-Dumps to haul rock . . . about 78,000 yards.

4200' cycle every 6 minutes

Time studies show the Tournapull Rear-Dumps are real producers. With wide, easily entered bodies, they were loaded with 10 pay yards by a 1¾-yd. Lorain shovel in an average of 1 minute, 40 seconds. Working 4200' cycles, each round-trip took only 6 minutes. Haul and return speeds averaged 12 mph. Hourly output for the 2 machines was 180 pay yards per 55-minute hour.

More speed on long hauls

This kind of production and Tournapull interchangeability highly pleases the owners. Says Supt. G. M. Wakefield: "I like the C Tournapull prime-mover. It's got a good scraper and rear-dump. It will stand up against any dirtmover."

Adds operator C. L. Moore: "The Tournapull can turn everywhere, and it's got more speed on long hauls. It's simple to understand . . . easier to operate than other rigs."

Figure out for yourself on the basis of cost alone the extra value of Tournapull interchangeability. An additional haul unit costs about 25% of the total initial price of prime-mover and original haul-unit combination. Interchangeable haul-units can be purchased at any time.

Find out how this double-duty equipment can give *you* double earning power for every dollar of investment. For more facts and owner-verified case histories, write or phone today.

Dumping on the run, Rear-Dump builds subgrade in cut where rock has been removed. Average dumping time was about 20 seconds. Electric controls respond instantly for steering and controlled dumping.

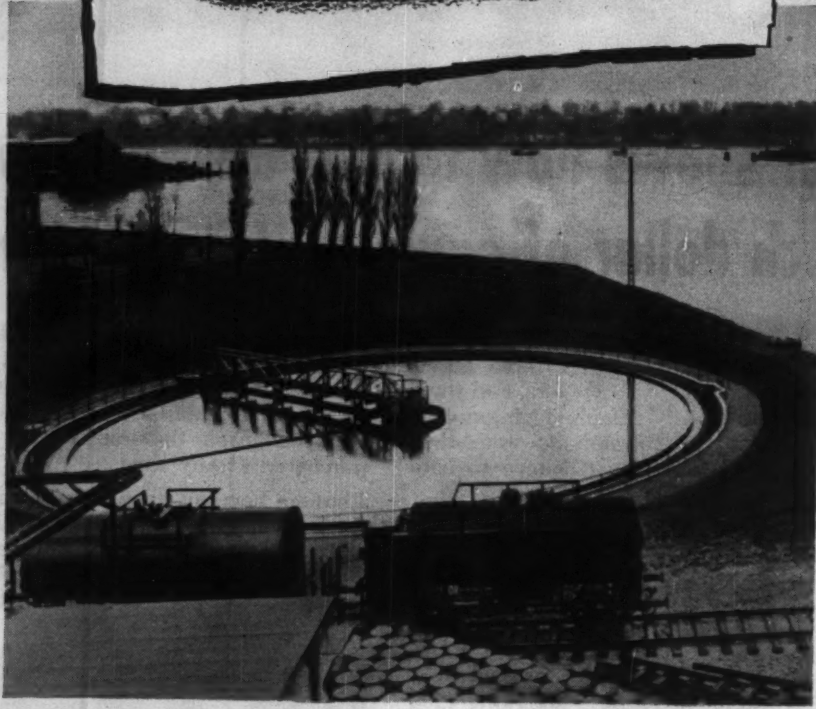
Tournapull—Trademark Reg. U.S. Pat. Off. R-801-H-b

LeT

LeTourneau-WESTINGHOUSE Company
Peoria, Illinois
A Subsidiary of Westinghouse Air Brake Company

Oil Refinery Waste Treatment in

Germany



In Germany too, stream pollution by industrial wastes causes serious problems. A large refinery in Hamburg solved the problem with the installation above. Showing a marked similarity to current practice in the United States, the plant employs a 110′ dia. Dorr Clarifier equipped with a skimming arm as the main treatment unit.

Feed to the unit is 6600 GPM of refining waste, and an effluent is produced containing less than 20 ppm of oil, well under the limits required by the authorities. Equipment was supplied by our Associated Company in Germany, Dorr-Oliver G.m.b.H.

If you have a problem involving the separation of finely divided solids in suspension . . . or ion-exchange . . . or the use of fluidizing techniques, there's a good chance that Dorr-Oliver and its world-wide organization can help you.

DORR-OLIVER
INCORPORATED
WORLD-WIDE RESEARCH · ENGINEERING · EQUIPMENT
STAMFORD · CONNECTICUT · U.S.A.

MEN AND JOBS

building commissioner of Chicago, succeeding **Richard Smykal,** who was appointed commissioner of the new Community Conservation Board . . . **John Irvin Church,** who's been with the North Carolina Highway Department for 19 years, becomes district highway engineer for Cleveland, Gaston and Lincoln counties.

• **Business**—The Green Engineering Company, structural engineers in Sewickley, Pa., names **Julian A. Vrydagh** as chief draftsman, and **George Ono,** active for the last 14 years in industrial, institutional and commercial electrical distribution, power, controls and lighting, joins the company as head of its electrical department . . . Consulting engineers Weinberger & Weishoff and Leichtman & Quinn form a new firm known as **Weinberger, Weishoff, Leichtman & Quinn,** consulting engineers, in New York City.

Richard R. Tipton, formerly with the Bureau of Public Roads, opens a civil engineering office in Berkeley, Calif., for designing bridges, highways and drainage structures . . . **M. K. Douglas,** former chief engineer of B.C. Concrete Co., Ltd., is named head of the new Vancouver office of A. B. Sanderson & Co., Ltd., Victoria, B. C., consulting engineers . . . **Theodore F. Smith,** former president of Oliver Iron and Steel Corp., Pittsburgh, joins Kaiser Engineers Division of Henry J. Kaiser Co. as industry consultant.

C. George Dandrow, who retired this year as president of the New York Building Congress, joins Johns-Manville Corp. as vice president for customer relations . . . **Albert W. Hainlin,** former University of Miami professor and director of its Housing Research Laboratory forms an engineering firm known as Albert W. Hainlin & Associates in Coral Gables . . . **A. Reid Chappel** is named supervising engineer, Sheraton Corp.

• **Education**—**Daniel A. Okum** is named head of the Department of Sanitary Engineering at the University of North Carolina . . . **Haaren A. Miklofsky,** formerly at George Washington University, joins the civil engineering faculty at Rensselaer Polytechnic Institute, where he will teach structural engineering . . . **J. B. Blackburn,** who has been conducting highway research at Purdue University, is appointed to the civil engineering staff at the University of Maryland.

Tractor-on-rubber spreads 30 to 35 truck-loads hourly for New York Thruway

To speed their work on the Herkimer Section of the New York Thruway, east of Utica, L. G. DeFelice & Son, Inc., North Haven, Connecticut, brought in a 186 hp rubber-tired Tournatractor.

360 to 420 yards hourly

This new unit is now helping move 4,000,000 yards of sand, clay, earth and shale. Some of the time, it works alongside the Erie Canal, where a dragline is excavating 15 to 20′ of muck to provide a stable base for the road. Tournatractor's job here is to backfill sand and gravel brought in by dump trucks. In typical operation, it spreads 30 to 35 loads (360 to 420 yards) hourly. Pushes vary from a few feet to 300 feet one-way. Dozer loads average 2½ yards each. Compaction is attained by rolling action of tires, plus back-blading with down-pressure on return portion of each cycle.

All-purpose tool

When caught up on this phase of the work, Tournatractor speeds at 19 mph to handle a wide variety of odd-lot assignments. In addition to backfilling, it helps other tractors spread scraper-dumped dirt . . . tows compressors and other equipment . . . cleans haul roads . . . and pushes or pulls trucks out of the mud. In final stages of earthmoving, Tournatractor will tow a 50-ton rubber-tired compactor.

"I like the Tournatractor very much as a push-tractor," says Foreman James Perkins. "It's also tops for spreading truck-dumped loads."

"I like Tournatractor's maneuverability," says Operator Charles L. Curran. "That down-pressure is really okay for back-blading."

Ask for a demonstration

No matter what size equipment fleet you have, no matter whether you move dirt with scrapers or trucks — or both — you'll find these three major Tournatractor advantages well worth considering:

1 Tournatractor's fast pushing speed, instant gear changes and 8 mph reverse enable it to do twice as much work as a crawler-tractor on most jobs.

2 Tournatractor reduces travel time between jobs by driving anywhere under its own power at speeds up to 19 mph.

3 Its four single-wheel units, with power traveling on sealed anti-frictions, require much less maintenance than crawlers with their 450 to 550 moving parts.

But check these advantages for yourself. Let us demonstrate a new, more powerful 208 hp Tournatractor on your job. Call or write us to arrange time and place.

Tournatractor—Trademark T-614-H-b

LeTourneau-Westinghouse Company

PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

FOR REMOTE CONTROL JOBS on a great variety of CONSTRUCTION EQUIPMENT

TRU-LAY *Flexible* PUSH-PULLS

are Dependable and Accurate even under the most adverse conditions. They perform effectively under extremes of Heat or Cold . . . from jet engine temperatures to 70° below zero F. The inner, working member (lubricated for life during assembly) is fully protected by the tough, flexible conduit. Abrasive dusts, dirt and moisture are sealed out. Fittings are cold swaged to make them integral parts of the control unit. It is a matter of record that we have never heard of a TRU-LAY *flexible* PUSH-PULL wearing out in normal service. Use of these versatile, simple and rugged controls means the virtual Elimination of Maintenance.

Widely Used on Construction Equipment

Adaptability to all sorts of mechanical situations explains, in large measure, the wide-spread use of TRU-LAY PUSH-PULLS on Tractors and their accessories, Power Shovels, Winches, Road Graders, Road Oilers, Dump Trucks, Snow Plows, Engine-driven Pumps, Rock Crushers, etc.

On Construction Equipment these dependable Push-Pulls are used for the remote control of Hydraulic and Air Valves, Brakes, Clutches, Transmissions, Throttles, Chokes, Governors, Power Take-Offs, and on many other applications.

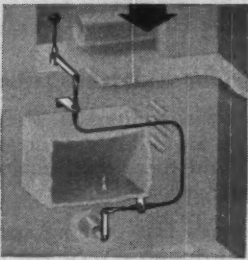
TRU-LAY PUSH-PULLS are precision products, not gadgets. They provide positive remote-action whether anchorages are fixed or movable . . . for light loads or loads up to 1,000 lbs. . . . and they are effective over short or long distances up to 150 feet or more.

For full details, write for DATA FILE.

***Advantages** of Tru-Lay Push-Pull flexibility and simplicity are pictured below*

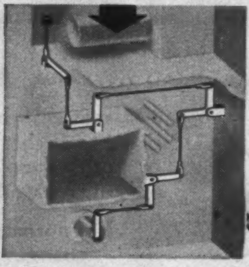
TRU-LAY PUSH-PULL

Simple • One Moving Part Life-Time Service • Life-Time Accuracy • Low over-all Cost Noiseless



MECHANICAL LINKAGES

Complex • Many Parts Many Points of Wear • Increasing Back-Lash • Loss of Accuracy • Vibration Rattles



"Solid as a rod but *Flexible* as a wire rope" is a good description of TRU-LAY PUSH-PULL REMOTE CONTROLS. This flexibility makes it possible to snake around obstructions as shown in the picture at the left . . . permits the ideal arrangement of all control elements . . . greatly simplifies installation of controls by reducing the number of working parts . . . damps out noise and vibration. Versatile, Accurate, Adaptable, Rugged . . . they are the ideal remote controls for Construction Equipment.

Our DATA FILE will answer your further questions
Write for a copy without obligation

Push-Pull DATA FILE

ACCO

AUTOMOTIVE and AIRCRAFT DIVISION
AMERICAN CHAIN & CABLE

601-F Stephenson Bldg., Detroit 2
2216-F South Garfield Ave., Los Angeles 22 • 929-F Connecticut Ave., Bridgeport 2, Conn.

OBITUARIES

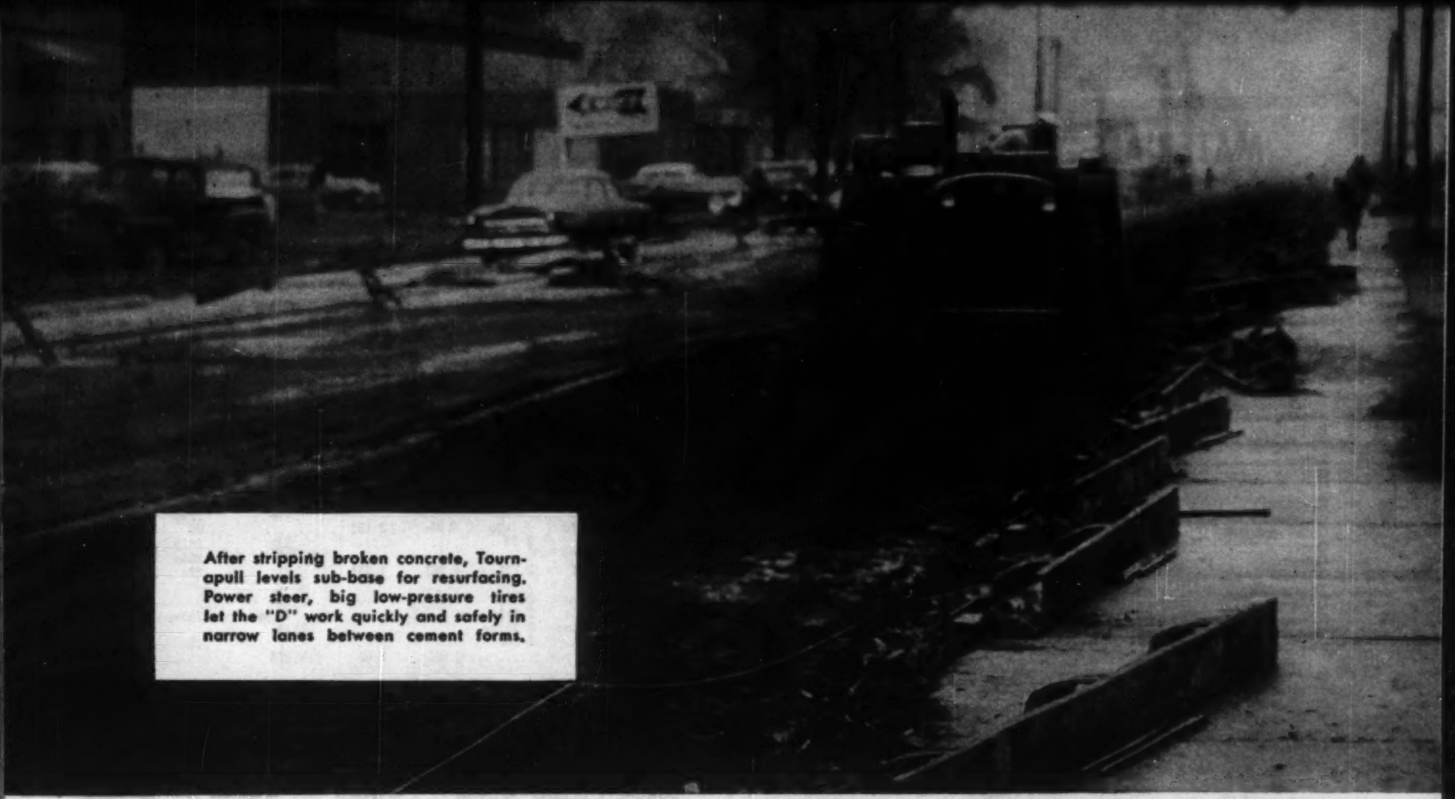
Frank J. Herlihy, 74, president of Herlihy Mid-Continent Co., Chicago building and construction firm, died Sept. 20. He was closely identified with Chicago construction for 30 years. His firm built most of Wacker Drive and its extensions, substantial portions of the Congress St. Expressway and is in the process of building six of Chicago's big parking garage prospects.

Charles M. Anderson, 70, New York civil engineer, died Sept. 21 at Gouverneur, N. Y. He was associated with the Brooklyn Edison Co. before going to northern New York to serve with the state highway commission on road construction. Later, he did survey work on subway construction in New York City.

Carl W. Brown, 69, chief engineer of the Missouri State Highway Department from 1939 to 1951, died Sept. 12, at Fulton, Mo. Brown, a former president of the American Road Builders' Association, was graduated from the University of Missouri School of Engineering where he was once honored as the school's most distinguished graduate.

John Schaaf, 68, active in engineering circles in the Buffalo, N. Y. area for many years, died Sept. 10. He was former superintendent of Hendrich Construction Inc., of Buffalo; president of San-Dis Engineering Corp., a sewage disposal engineering concern, and president of Schaaf Construction Co. He was a graduate of Massachusetts Institute of Technology.

James H. Griffin, 66, chief engineer of the New York City Transit Authority from 1945 until his retirement in June, 1955 and a member of the Authority's engineering staff since 1913, died Sept. 17. When he became the authority's chief engineer, he was the youngest man ever named to that post. His service with the Authority was interrupted from 1917 to 1919 when he served as captain with the 5th Engineers. Projects undertaken while he was with the Authority include extension of the IRT division into Brooklyn beyond Atlantic Ave., much of the extension of the BMT division and construction of the entire Independent division. Griffin received a civil engineering degree from Cooper Union College in 1912 and then worked as a surveyor, for one year, with the New York State Barge Canal.



After stripping broken concrete, Tournapull levels sub-base for resurfacing. Power steer, big low-pressure tires let the "D" work quickly and safely in narrow lanes between cement forms.

45% lower costs, 100% greater output

after scrapers replace dragline and trucks

Tearing out old pavement and grading roadways for resurfacing, Denton Construction Company of Detroit, Michigan, handles contracts more speedily . . . more profitably today than ever before. Prior to 1951, Denton moved the broken concrete and various subgrade materials with a ¾-yd. dragline and trucks. Then, they bought and began using 7-yd. D Tournapulls on the same work.

Here's what the record book shows after resurfacing 20,000 yards on Hazel Park streets; 7,000 yards on 8-Mile Road in Detroit; 40,000 yards on 9-Mile Road, and handling a number of smaller 500 to 1,000-yard contracts:

Where dragline-truck methods move an average 65 yards per hour, 2 D Tournapulls, working under same conditions, *move 130 yards per hour.* Cost records show that, doubling production, the 122 hp D Tournapulls reduce Denton's costs by 45 to 50% per yard!

Finish 500-yd. job in 4½ hours

On one longer-than-average 5300′ cycle, each "D" removed about 11 loads per 55-minute hour. Crawler-pusher was used to load the very tough, rough, sharp material. "D's" together delivered 110 bank yards per hour . . . finished 500-yard job in 4½ hours. Working 8 to 10 hours per day, 6 days per week, Denton's D Tournapulls have logged 90% mechanical efficiency.

"Good because of maneuverability . . ."

According to C. C. Leduman, General Superintendent, the Tournapulls drive through traffic from job-to-job at speeds up to 28 mph. Big 18.00 x 25 low-pressure tires do not damage pavement. Multi-disc air brakes on all 4 wheels activate 2822 square inches of braking surface for instant or controlled stops. Kingpin between prime-mover and trailing unit permits 90° power turns in radius of 12′8″. Job Foreman A. Schofield says, "'D's' are good for our work because of their maneuverability, and their ability to move in close quarters between cement forms."

Now available — FREE — a valuable new reference book: "Earthmoving, An Art And A Science". Its 60 pages tell how to increase output and lower costs. Unbiased. Written by experienced field engineers; checked by veteran dirtmovers. For your copy, write LeTourneau-Westinghouse Company, Peoria, Illinois.

Tournapull—Trademark Reg. U.S. Pat. Off. DP-591-H-b

LeT

LeTourneau-WESTINGHOUSE Company

Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents November Materials, and Labor Prices, will appear in November 10, 1955 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8x8x16-in." truckload del." per block		CONCRETE Ready Mixed 1:2:4 ave. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$3.97a	$3.56a	$3.40	$2.75	$2.75	$2.50‡	$2.14	$2.24	$1.45	$1.65	$0.18	$0.195	$12.25g
Baltimore	4.16a	3.75a	3.63	2.70‡a	2.70‡a	2.20‡a	2.75‡a	2.80‡a	1.95‡a	1.90‡a	.18	.18a	12.15
Birmingham	3.72	2.75e	....	2.53n	2.53n	2.08n	2.75	2.75	1.35	1.55	.165	.165	11.00
Boston	4.47b	4.11b	4.06	3.00a	3.00a	3.00a	1.60a	1.75a	....	....	.23	.265a	13.00h
Chicago	3.73a	3.32a	3.35	3.60‡b	3.60‡b	3.75‡b	3.50‡b	3.50‡b	2.25‡	2.25‡	.23	.23b	13.00
Cincinnati	3.95c	3.55c	3.73	2.19‡c	2.24‡c	2.24‡c	2.54‡c	2.54‡c	....	....	.195	.225a	11.60
Cleveland	N.A. in C.L.	3.34e	....	2.05ej	1.85j	1.65	4.10‡a	4.10‡a	3.35c	3.15‡	....	.22	15.45
Dallas	3.15a	2.85a	2.93	2.18	2.28	1.84	2.22	2.38	....	....	.11e	.2675	9.40
Denver	4.44a	3.94a	4.44	1.85	2.00	1.20	....	....	....	....	.23	.255a	10.50
Detroit	3.89a	3.30a	3.54	4.50‡b	4.50‡b	4.00‡b	3.75‡	3.75‡	4.25‡	4.25‡	.21	.22a	12.80
Kansas City	4.10b	3.90b	3.90	1.65	1.65	2.00‡a	2.00‡a	2.00‡a	....	....	.20a	.24c	12.75b
Los Angeles	4.92ch	4.46ch	5.40	2.31‡a	2.51‡a	2.31‡a	2.16‡a	2.31‡a	....	....	.145jm	.255m	12.46h
Minneapolis	4.20a	3.79a	3.71	2.70‡ag	2.70‡ag	1.60‡ag	3.25‡ag	3.25‡ag	....	....	.19	....	12.75f
Montreal	3.11d	2.86d	....	2.20a	2.20a	2.25a	1.90i	2.20i	....	....	.17	.17a	10.80ek
New Orleans	3.55a	3.40a	3.48	2.44	2.44	2.00	....	....	1.45	1.65	.275	....	12.90
New York	4.26a	3.85a	3.63	3.05bk	3.05bk	2.00bk	2.80bl	2.80bl	....	....	....	....	15.50an
Philadelphia	3.73/4.12‡a	3.42/3.79‡a	3.58/3.63‡	2.85‡op	2.85‡op	2.35‡op	2.45‡	2.55‡	2.00	2.35	.22/.26	....	13.20de
Pittsburgh	3.75a	3.56a	3.75	2.40‡	2.40‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.25d	.31	14.00
St. Louis	3.70/3.93c	3.25/3.51c	3.55/3.72	3.00am	3.00am	2.40/3.00am	1.60j	1.70j	1.50	1.50	.22	.28c	12.90
San Francisco	3.83c	3.39c	....	2.07	2.07	2.17	2.22	2.22	....	....	.21	.28cl	12.15c
Seattle	4.80a	3.55a	5.95h	3.50‡bm	3.50‡bm	3.50‡bm	4.00‡bm	4.00‡bm	....	....	.26	.3515	12.30i
Toronto	4.00	3.77	4.00	2.25	2.25	1.85	2.00	2.00	2.00	2.00	.25	.35c	14.95

‡ Delivered. * Prices incl. dealers discount except as noted.

CEMENT: •a Less 10¢ disc, 15 days. •b Less 2% disc, 15 days. •c Less 10¢ disc, 10 days. •d Truckload lots, deliv. 10¢ disc, 20 days. •e Truckload lots, destination price. •h LCL.

SAND GRAVEL, STONE & SLAG: •a Truck lots. •b Per cu. yd. •c 5 tons or more. •e ½″. •f Pea gravel. •g Less 5% for cash. •h Less than 5 tons. •i Sales tax incl. •j F.o.b. quarry. •k Barge lots asd. •l F.o.b. scow Hudson river. •m Less 2% for cash. •n F.o.b. cars. •o 1–3 mi zone. •p Add 10¢ for ea. add'l mi zone.

CONCRETE BLOCK: •a Cinder •b Waylite. •c Haydite. •d Celocrete •e 5¼ x 8 x 12 in. •f 8 x 4 x 16. •g F.o.b. truck at job. •i Less 2% for cash •l F.o.b. plant San Rafael. •m F.o.b. yard.

READY MIXED CONCRETE: •a 5 cu. yds. or over del. Man. •b 25 cu. yds or more. •c 10–100 cy. brackets. •d 1–3 mi. zone. •e 2,000 lb comp. •f 2,500 lb. comp. •g Less 25¢ disc, 15 days. •h Less 50¢ for cash. •i 5% off for cash. •j 2% off for cash. •k Federal tax included. Add 5% mum. & prov. •l 1:2½:3½. •m F.o.b. yard. •n Plus escalator clause. •o Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 40¢ per bbl., not refundable.

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.90†	Buffington, Ind	$2.85†	Steelton, Minn	$2.95†	Muskegon, Mich	$3.00†	Toledo, O	$2.90†
Clinchfield, Ga	2.90†	Independence, Kan	2.80†	Leeds, Ala	2.75†	Saginaw, Mich	3.00†	Milwaukee, Wis	3.05†
Kingsport, Tenn	2.90†	Hannibal, Mo	2.85†	Duluth, Minn	2.95†	Wyandotte, Mich	3.00†	Green Bay, Wis	3.05†
West Des Moines, Iowa	2.95†	Northampton, Pa	2.90†	Hudson, N. Y	2.75†	Buffalo, N. Y	3.25†	Ironton, O	2.90†
Nazareth, Pa	2.90†	Universal, Pa	2.95†	Alpena, Mich	2.90†	Oswego, N. Y	3.15†	Montreal City	2.56
Bath, Pa	2.90†	Waco, Tex. (+ 10¢ tax)	2.85†	Detroit, Mich	3.00†	Cleveland, O	2.95†	W. Winfield, Pa	3.00†

† *Prices to hold for fourth quarter of* 1955.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration		CUTBACK ASPHALT MC per ton		ROAD OIL Per gal.	ASPHALT EMULSION RSI Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	......	......	......	$26.00	$33.25	$0.115	$0.23	$0.125Pw	$0.27Pw	$0.15	$0.15	$0.25
Baltimore	150.00‡	75.00‡	......	21.00i	......	.085i	0.175i	.09iwE	.18iwE	.09i	.095i	0.185i
Birmingham	......	57.50i	......	......	......	......	......	......	......	......	......	......
Boston	......	......	......	22.00a	23.00a	22.00av	22.00av	.09aF	......	.10a	.145aG	.22aG
Chicago	155.00‡	85.00‡b	3.50/3.55‡j	20.85b	30.85b	19.85bv	29.85bv	.094bwH	.1740bwH	.0775b	......	......
Cincinnati	......	......	......	......	......	......	......	......	......	......	......	......
Cleveland	200.00	73.00d	5.03g	23.00A	......	23.00A	......	.1025AwF	......	......	.1025AG	.18AG
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	28.91	50.44	.098	.1087	.1960
Denver	......	50.00	......	......	......	......	......	......	......	......	......	......
Detroit	......	104.00	......	27.21	......	27.21v	......	.1188wI	......	.0966	......	.211
Kansas City	e	e	e	15.00cl	......	17.50v	......	.07cwJ	......	.055c	0.11	......
Los Angeles	e	......	e	16.00dmx	......	16.00dvx	......	18.00dxK	......	17.00dv	.0825j	.1725j
Minneapolis	......	......	2.97h	25.00	......	25.00	......	0.105w	......	0.095	.1075	......
Montreal	e	e	e	27.00n	39.60n	.135n	.198n	16.50nuE	20.90nuE	.132n	.197ns	.239ns
New Orleans	......	......	......	17.50e	......o	17.50cv	......o	.085ew	......o	.085B	.085BI	......
New York	......	......	2.85f	23.89qCD	44.32qD	22.89vtCD	43.57vtD	.1023wCDF	.1889wDF	......	.1023CD	.1918B
Philadelphia	175.00	110.00	4.06	22.00	......	......	......	.09uF	......	......	......	......
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00E	40.00E	.098	.11	.224
St. Louis	......	......	......	18.76f	......	.1704	......	.0863wM	......	0.1575	.10	......
San Francisco	......	67.50c	......	17.50g	33.00g	17.50gkv	33.00gkv	20.00gN	37.50gN	18.75v	.085y	......
Seattle	......	......	......	17.50h	38.00h	17.25hv	......	24.50K	......	19.75hv	.085h	.095hr
Toronto	......	......	4.03	23.80	46.67	0.19	0.24	0.20w	0.25w	0.17	0.20	.24

h Delivered.

PAVING BRICK & BLOCK: •a CL. •b 3 x 4 x 8. •c 2¼ x 8¼ x 4. •d LCL, truck deliveries. •e Not used. •f 2″ interior 6# treat. •g 3″ •h 2″ tr, 8# •i 3 x 3⅝ x 8½. •j 2½″, 6 lb. tr.

ASPHALTS: •a Price at plant, Everett, Mass. •b F.o.b. refinery, Lockport, Ill. •c F.o.b. Sugar Creek, Mo. •d F.o.b. refinery, El Segunda. •e F.o.b. Baton Rouge. •f F.o.b. Hartford. •g F.o.b. Richmond, Calif. •h F.o.b. Martinez. •i F.o.b. refinery, Baltimore. •j F.o.b. refinery, Inglewood, Calif. •k 50–110 penetr. •l Less than 100 penetr. •m 40/80 penetr. •n Tax incl. •o Drums not avail. Shipped in steel bbl. •q 40/85 penetr. •r In customer's drums. •s Shipped in drums, per drum. •t 85/200 penetr. •u Per 100 gal. •v Per ton. •w Per gal. •x Also tank trucks. •y F.o.b. Oakland. •A F.o.b. refinery, Cleveland. •B F.o.b. Destrehan, La. •C Bulk. •D Prices based on transporting to Manhattan via truck. •E RC. •F Also RC. •G Also MS, SS. •H RC 0–5 incl. •I MC 4. •J MC, RC .0675. •K MC 3, 4 & 5. •L MS. •M MC 1–5, RC 1–5, .089. •N MC 3. •P F.o.b. refinery Savannah: $0.09/gal., tank cars; $0.20/gal., drums.

MATERIALS AND LABOR PRICES

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	STEEL RAILS Per Net Ton Light	TRACK SUPPLIES Angle Bars	TRACK SUPPLIES Std Spikes	TRACK SUPPLIES Tie Plates	TRACK SUPPLIES Track Bolts
Birmingham Area	$4.60	$4.50	$4.65	$9.25	......	$94.50	$113.00	$5.825	$7.90	$5.625	......
Chicago Area	4.60	4.50	4.65	9.25	$5.45	94.50	113.00	5.825	7.90	5.625	......
Pittsburgh Area	4.60	4.50	4.65	9.25	5.45	94.50	113.00	5.825	7.90	5.625	$11.50
Buffalo Area	4.60	4.50	4.65	9.25	5.45	94.50	113.00	5.825	7.90	5.625	11.50
Cleveland	......	......	4.65	9.25	5.45	......	......	......	......	......	11.50
Youngstown Area	......	......	4.65	......	......	......	......	......	7.90	......	......
Geneva	4.60	4.50	......	......	......	......	......	......	......	......	......
Los Angeles	......	......	......	......	5.45	......	......	......	7.90	......	......
Pueblo	4.90	5.35	5.10	......	......	......	95.00	5.825	7.90	5.625	12.40

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price 5 tons to carload lot New billet	REINFORCING BARS Rail steel	EXPANDED METAL LATH‡ Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	EXPANDED METAL LATH‡ Std. ribbed 3.4 lb.
Atlanta	$7.63	$7.42	$7.42	$38.00‡	$42.00‡
Baltimore	7.63	7.00j	....	44.00	47.00
Birmingham	7.28t	7.08t	7.08t	51.00p	57.00p
Boston	8.13a	7.82	7.82	44.00	48.50
Chicago	7.28	6.23gu	6.23gu	49.00‡	60.00‡
Cincinnati	7.75ak	7.56rv	....	41.00mr	45.50mn
Cleveland	7.91	6.41c	....	41.00‡	45.50‡
Dallas	9.05	7.25	7.25	49.00	52.00
Denver	8.75	7.80c	....	54.00n	60.00on
Detroit	7.75	8.02	....	55.50	66.00
Kansas City	7.95a	7.75	....	49.00	60.00
Los Angeles	8.15fd	7.60	....	54.50	60.50
Minneapolis	7.64d	8.06b	8.06b	42.50	47.00
Montreal	7.70–8.15iC/7.75–8.15A	6.75/8.15i	6.75/8.15	46.00h	51.00h
New Orleans	....	6.20akz	....	66.00	60.00
New York	7.77	7.35u	7.35y	44.50no	51.00no
Philadelphia	7/7.15	7.30/7.45	....	38.00‡	42.00‡
Pittsburgh	6.98	7.37z	6.95	39.78	41.90
St. Louis	7.68s	6.75c	6.75c	55.00l	56.00l
San Francisco	8.20	7.45j	....	44.00	52.25
Seattle	5.35e	7.00cj	....	53.50nr	59.50nr
Toronto	8.40*	6.55	6.55	53.50n	67.50n

Quantity extras, per cwt: under 100#, +$6; 100–399#, +$3; 400–999#, +1.25; 1000–1999#, +30¢; 2000–4999#, base price; 5000–9999#, −10¢; 10,000–19,999#, −30¢; 20,000–29,999#, −50¢; 30,000# and up, −70¢

EXTRAS, per cwt—•Quantity: less than 700#, +50¢; 700–1499#, +25¢; 1500–7999#, +10¢. •Size†: #2 +$2.20; #3 +$1.10; #4 +80¢; #5 +62.5¢; #6, #7 +45¢; #8, #9, #10 +30¢. •Bending: heavy, +80¢; light, +$2 (except in New York City and surrounding metropolitan area where bending must be done on the job). •Engineering (details and placing from designs by others): over 500 tons, +45¢; 200–500 tons, +50¢ but not over $4500; 20–200 tons, +60¢ but not over $2000; 5–20 tons, +70¢ but not over $240; under 5 tons, +85¢ but not over $70. •Design only: +60¢.

WELDED FABRIC REINFORCING
Per 100 sq ft., carload lots fob mill

4 × 16 in., No. 5 & 10 wires— Joliet, Ill., Donora, Pa., Monessen, Pa.	$3.40
4 × 12 in., No. 8 & 12 wires— Joliet, Ill., Donora, Pa., Monessen, Pa.	$2.47
6 × 6 in., No. 6 & 6 wires— Joliet, Ill., Donora, Pa., Monessen, Pa.	$3.57

•‡ Delivered •a 2000–9999# •b 10,000–15,999#, fob city •c 20 tons or over •d 10,000–19,999# •e fob plant •f incl. delivering in free zone •g CL •h list price; •i delivered; contractor dominion tax exempt; add provincial and municipal taxes •l add dominion, provincial and municipal sales taxes •j intermediate and hard grade •k fob city •u add 6.25¢ switch to do unloading •m copper alloy •n LCL •o asphalt coated •p del. of 500 sq. yd. or more. •r 2% off for cash •s 2,000–4,999# •t add 15¢ del. † Number system replaces inch system of classifying bar sizes. New system is based on number of eighth inches in diameter of bar. •v incl 15¢ del. •x add 5¢ switch •y add 30¢ del. •z add 10¢ del. •A American made. •C Canadian made. •* Aver. of Canadian & American.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE PRICE INDEXa	ASBESTOS CEMENT PIPE per lin. ft. f.o.b. city 6" Pr Cl. 150	ASBESTOS CEMENT PIPE 12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	VITRIFIED SEWER PIPE std. 12 in. s.s.	VITRIFIED SEWER PIPE 24 in. ds.	VITRIFIED SEWER PIPE 36 in. ds.	CLAY DRAIN TILE ASTM C4-24 PER 1,000 ft., carload lots, f.o.b. 6 in.	CLAY DRAIN TILE 8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	CONCRETE SEWER PIPE 24 in.
Atlanta	113.6	$1.52	$2.53	$.545	$1.27	$4.82	$12.925	......	......	$0.90m	$3.40m
Baltimore	122.9	1.52	2.53	.574	1.07	4.455v	11.7875	$178.20	$274.80	.99	2.70
Birmingham	109.3	1.52	2.53	.42	.75	3.30w	10.50w	260.00‡	400.00‡	1.25m	2.75m
Boston	125.5	1.54	2.32	.609qrt	1.1745qrt	4.815qrt	12.505qrt	187.80r	289.20r	1.54mg	3.65mg
Chicago	126.0	1.52	2.32	.77m	1.48m	6.25m	19.00m	150.00‡	270.00‡	1.00	3.65
Cincinnati	119.5	1.54	2.40	.644t	1.242t	4.77t	12.1975	240.00	370.00	.80m	2.95m
Cleveland	126.8	1.54	2.40	.546s	1.053s	4.32t	11.48t	158.00m	245.65m	.85m	3.25m
Dallas	125.7	1.54	2.66	.439	.799	4.00b	9.17b	......	......	.49	1.60
Denver	131.4	1.62	2.66	.45n	.78n	3.48n	......	......	......	.74m	2.50m
Detroit	126.8	1.54	2.40	.80	1.50	5.95	16.40	240.00m	370.00m	.95	3.82
Kansas City	124.7	1.54	2.40	.56	1.00	4.13	11.20	250.00	480.00	.90	3.25g
Los Angeles	131.1	1.62	2.32	.67l	1.46l	5.97l	14.89l	228.20l	348.90l	.95	2.75f
Minneapolis	131.0	1.57	2.53	.76mo	1.38mo	5.70mo	......	......	......	1.66h	4.47h
Montreal	......	....	....	1.07u	1.73u	5.52u	8.93u	......	......	1.17h	3.11j
New Orleans	116.0	1.52	2.53	.51	.925	4.91	......	280.00p	460.00p	.65	2.29
New York	121.5	1.54	2.32	.85	1.62	6.33	16.49	......	......	1.15	3.00
Philadelphia	120.9	1.52	2.32	.67	1.29	5.08v	12.65v	300.00‡	350.00‡	1.60h	3.95hj
Pittsburgh	127.5	1.54	2.32	.468m	.864m	3.86m	9.78m	152.00	244.00	1.05h	2.50i
St. Louis	120.5	1.52	2.40	.56	1.03	4.22	9.80	180.00l	380.00l	1.30il	2.80il
San Francisco	131.1	1.62	2.32	.74d	1.62d	6.59d	16.47d	235.00l	392.00l	1.05m	3.30n
Seattle	131.1	1.62	2.32	.51b	.91b	....	......	150.00c	......	.90k	2.85k
Toronto	......	....	....	.76	1.425	5.70	......	157.00	280.00	.87	3.05

***WROUGHT STEEL PIPE**
(Full standard weight)
Discount from list; see footnote

Mill	2½ & 3 in., Butt Weld† Black %	2½ & 3 in., Butt Weld† Galv. %	3½ to 6 in., Lap Weld† Black %	3½ to 6 in., Lap Weld† Galv. %
Lorain, Ohio	28.00	10.75		
Aliquippa, Pa	28.00	14.25	18.50a	4.25a
Sparrows Pt., Md	26.00	8.75	13.50a	+4.25
Benwood, W. Va	28.00	10.75	17.50d	+0.25d
Youngstown, O	28.00	10.75	......	......
Indiana Harbor, Ind	27.00	9.75	17.50ab	+0.25a
Sharon, Pa	28.00	10.75		......
Wheatland	28.00	10.75	16.50a	+1.25a
Etna, Pa	28.00	14.25	17.50d	3.25d
Fontana, Calif	16.50b	2.75b	7.00ab	+7.25ab

† Threaded and coupled. *a* 3½ to 4 in. *b* Continuous weld. *c* 5 and 6 in. *d* 6 in.

•* Delivered. •a BEGINNING 8/4/55 PRICE INDEXES for CENTRIFUGAL CAST IRON PIPE (include carload freight allowed to city). These also serve as the HISTORICAL RECORD of THE $ PER NET TON PRICE of CLASS B, B&S, PIT CAST IRON PIPE. F.O.B. Foundry Price Indexes Birmingham, Ala., 109.3; Burlington, N. J., 118.1. •b Extra strength ASTM C 200–44T •c 4-in., $90 •d SS361-A •e 30-in. •f 21 in. •g culvert pipe; reinforced, ASTM C 76–41 •h reinforced, ASTM C 75–41 •i reinforced, ASTM C 76–37 •j centrispun; no standard specs. in Canada •k 2% off for cash •l fob plant •m truck delivery •n LCL delivered, fob truck •o listed price based on ASTM C 76–37 •j centrispun; no standard specs. in Canada •k 2% off for cas •l fob plant •m truck delivery •n LCL delivered, fob truck •o listed price based on LCL (no min.) •p freight allowed to destination in city •q ASTM C 13–40 •r CL fob origin, freight allowed •s 2 ft lengths •t 3 ft lengths •u CESA A 60–1941 specs. used •v standard strength •w ss; add 20% for d.s.

• **WROUGHT STEEL PIPE:** Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft.(*based on approx. $200 per net ton): Butt Weld ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. Lap Weld 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: Butt Weld—1 in. black, + 50.25, galv., + 78.50; 1¼ in. black, + 50.25, galv. + 78.0, 1½ in. black, + 46.75 galv. + 74.25; Lap Weld —2½ in. to 3 in. black + 52.50 galv. + 78.50; 4½ in. to 6 in. black + 49.50 galv. + 73.75 Add freight rates plus 3% transportation tax to get destination price.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1. Lengths up to 20 ft.
(Prices in italics)

	Short Leaf Yellow Pine and Douglas Fir									Long Leaf Y. P. Merchantable grade up to 20 ft.		Plywood Rail freight increment (See note for base price)	
	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	2x12 Rgh	12x12 Rgh	5/8"	3/4"
Atlanta †	**$78.00**	**$80.00**	**$75.50**	**$74.00**	**$77.50**	**$81.00**	**$79.00**	......	......	......	......	$22.32	$27.24
Baltimore *	**92.00**	**97.00**	**94.00**	**94.00**	**95.00**	**102.00**	**112.00**	......	......	**$170.00**	**$185.00**	25.92	31.60
	132.00g	*132.00g*	*132.00g*	*132.00g*	*132.00g*	*132.00g*	*138.00g*	*$145.00*	*$145.00*	......	......	......	......
Birmingham †	**81.50**	**83.50**	**80.50**	**87.50**	**90.50**	**95.50**	**100.50**	......	......	**120.50**	**165.50**	21.78	26.58
	105.00	*105.00*	*108.50*	*108.50*	*108.50*	*105.00*	*105.00*	*105.00*	*105.00*	......	......	......	......
Boston *	**101/107a**	**110/115a**	**105.00a**	**105.00a**	**105.00a**	**105.00a**	......	......	......	......	......	25 92	31.60
¹	*93.00n*	*93.00n*	*123.00*	*123.00*	*123.00*	*123.00*	*129.00*	*129.00*	*129.00*	......	......	......	......
Chicago **	**97.00**	**100.00**	**93.00**	**108.00**	**116.00**	**117.00**	**112.00**	......	......	**140.00**	**140.00**	22.45	27.37
	104.00	*104.00*	*115.00*	*115.00*	*115.00*	*116.00*	*123.00*	*123.00*	*123.00*	......	......	......	......
Cincinnati *	**93.75**	**94 75**	**83.00**	**90.50**	**94.75**	**103.00**	**110.50**	......	......	**131.75**	**131.75**	25.00	30.48
	101.75	*104.00*	*113.50*	*115.00*	*116.50*	*116.75*	*140.00*	*140.00*	*140.00*	......	......	......	......
Cleveland **	**96.00**	**98.00**	**103.00**	**102.00**	**102.00**	**103.00**	......	......	......	......	......	25.37	30.93
	......	......	*118.00*	*119.00*	*119.00*	*120.00*	*129.00*	*129.00*	*129.00*	......	......	......	......
Dallas k‡	**72.00**	**78.00**	**68.50**	**68.50**	**73.50**	**65.50**	**130.00**	......	......	**127.50**	**134.50**	18.72	22.80
Denver *	*Not in stock*		*121.50*	*122.50*	*122.50*	*122.50*	*125.00*	*137.75*	*140.50*	......	......	13.92	16.98
Detroit ‡	**115.00**	**118.00**	**108.00**	**115.00**	**118.00**	**118.00**	......	......	......	......	......	25.00	30.48
	125.00	*125.00*	*134.00*	*130.00*	*130.00*	*130.00*	*175.00*	*190.00*	*190.00*	......	......	......	......
Kansas City *	**130.00**	**130.00**	**125.00**	**130.00**	**135.00**	**145.00**	......	......	......	......	......	16.56	20.16
	135.00	*135.00*	*135.00*	*139.00*	*139.00*	*140.00*	*160.00*	*180.00*	*205.00*	......	......	......	......
Los Angeles ¹	*107.00*	*107.00*	*107.00*	*107.00*	*107.00*	*107.00*	*121.00*	*131.00*	*121.00*	......	......	16.61*ab*	20.25*ab*
Minneapolis ♯	*135.00*	*135.00*	*140.00*	*140.00*	*140.00*	*140.00*	*175.00*	*175.00*	*175.00*	......	......	19.89	24.25
Montreal *ab*	**92.00**	**100.00**	**92.00**	**92.00**	**110.00**	**125.00**	......	......	......	**105.00**	**105.00**	......	......
	170.00	*170.00*	*170.00*	*170.00*	*170.00*	*170.00*	*142.00*	*142.00*	*142.00*	......	......	......	......
New Orleans †	**100.00**	**100.00**	**94.50**	**85.00**	**90.00**	**94.00**	**118.50**	......	......	**150.00**	**148.00**	18.72	22.80
†	*117.50*	*117.50*	*120.00*	*127.50*	*127.50*	*127.50*	*140.00*	*140.00*	*140.00*	......	......	......	......
New York ²	**112.50**	**115.50**	**125.00**	**127.50**	**127.50**	**127.50**	**167.50**	......	......	**250/270**	**250/270**	25.92	31.60
	......	......	*127 50*	*127.50*	*127.50*	*127.50*	*165/175*	*170/180*	*170/180*	......	......	......	......
Philadelphia ‡	**Range from $117.00 to $137.00**					**117/137**	**117/137**	......	......	**214/224**	**214/224**	25.92	31.60
	Range from $131.00 to $163.00					*131/163*	*136/158*	*158.00*	*158.00*	......	......	......	......
Pittsburgh †	**110.00**	**110.00**	**110.00**	**110.00**	**110.00**	**110.00**	**123.00**	......	......	**120.00**	**130.00**	25.92	31.60
	127.00	*127.00*	*135.00*	*135.00*	*138.00*	*138.00*	*130.00*	*145.00*	*145.00*	......	......	......	......
St. Louis ‡	**117.00**	**122.00**	**126.00**	**128.00d**	**138.00e**	**141.00e**	......	......	......	......	......	18.72	22.80
	......	......	*139.00i*	*140.00e*	*140.00e*	*144.00e*	*207.00e*	*207.00*	*207.00*	......	......	......	......
San Francisco A	*82.00*	*82.00*	*92.00*	*92.00*	*92.00*	*92.00*	*109.00*	*122.00*	*147.00*	......	......	12.22	14.91*a*
Seattle †	*75.00*	*75.00*	*75.00*	*75.00*	*75.00*	*75.00*	*86.00*	*86.00*	*96.00*	......	......	......	......
Toronto *a*	**97.00**	**100.00**	**98.00**	**97.00**	**103.00**	**105.00**	**120.00**	......	......	**106.00**	......	......	......
	135.00	*118.00*	*118.00*	*128.00*	*128.00*	*128.00*	*133.00*	*138.00*	*138.00*	......	......	......	......

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. ♯ Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: Bold Face Type, Southern Pine. Italics, Douglas Fir. *a Spruce. *b Tax exempt. *c 5M lots. *d 8, 10, & 12 ft. lengths. *e 8 to 16 ft. lengths. *g No. 1 common. *j 8ft. lengths. *k No. 3 common. *n †3. A incl rail rate from North west mills to San Francisco are $11.50 to $15.00 per M ft. bm. From Northern Calif, mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Interior Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on 5/8", $170.00; on 3/4", $191.00. Exterior 5/8", $190.00, 3/4", $212.00. For other centers add rail freight increment from table on proper size. Oiling and edge sealing charges included. *a Lower rate by water shipment. *b 50,000 lb. minimum.

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS: Discounts from jobbers list, Feb. 1, 1950*a* Single or Double Thickness		EXPLOSIVES: Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
	A quality	B quality	
Atlanta	79%	80%	$0 2465
Baltimore	78%*d*	80%*d*	.2465
Birmingham	82%	83%	.1915
Boston	75–10%	75–10%	.2465
Chicago	74%	74%	.2465
Cincinnati	76%	76%	.2465
Cleveland	74–10–10%	74–10–10%	.2865
Dallas	75%	75%	.2540
Denver	73%	73%	.2515
Detroit	74–10–10%	74–10–10%	.2465
Kansas City	76–10%	76–10%	.2515
Los Angeles	71%	78%	.2490
Minneapolis	73–10%	73–10%	.2515
Montreal	40–10–5%*bc*	40–10–5%*b*	21.35*h*
New Orleans	78%	79%	.2515
New York	80–2½%	80–2½%	.4125*g*
Philadelphia	77%	79%	.2465
Pittsburgh	78%	78%	.2465
St. Louis	80–10%	80–10%	.2515
San Francisco	61%	69%	.2465
Seattle	73%	76%	.2490

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U. S., $1.75 per 100 lbs. higher in Canada.

Glass: *a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c Single thickness. *d Discount 6/15/52. *e Discount eff. 12/31/54.

Explosives: * Cartridges of 1¼", 1½", 1¾", 2", 2¼", 2½", 3" diameters. Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h F.o.b Beloeil (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.10

40% Ammonia Gelatin price ranges in other than urban areas, per lb.
(except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me	$0.1915	$0.2265	$0.2465
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.1965	.2315	.2515
Rocky Mtn. States	.1965	.2315	.2515
Pacific N. W. States	.1940	.2290	.2490
Pacific S. W. States	.1915	.2265	.2465

PILES, TIES F.O.B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

			By Rail	
Dimensions	Points	Length	Pine*	Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.—2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.—2-ft. from butt	6-in.	60 to 69-ft.	.58	....
12-in.—2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.—3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.—2-ft. from butt	6-in.	50 to 69-ft.	.50/68	....
14-in.—2-ft. from butt	6-in.	70 to 79-ft.	.78/.88	.93
14-in.—2-ft. from butt	5-in.	80 to 85-ft.	.83/93	.94
14-in.—2-ft. from butt	5-in.	85 to 89-ft.	....	1.00
14-in.—2-ft. from butt	5-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:

		6" x 8" x 8'		7" x 8" x 8'6"	
		Untr.	Tr.	Untr.	Tr.
Birmingham*	Hardwood, Grade 3	$1.70	$2.55	Gr. 5 $2.25	$3.33
	Grade 2	1.50	2.35	" 4 2.10	3.18
	Grade 1	1.15	2.00	" 3a 1.70	2.78
Chicago	Red Oak	.....	3.45*a*	.....	4.30*a*
New York	S. L. Sap Pine	2.00	4.00	3.00	5.00
	Mixed Oak	2.50	4.50	3.50	5.50
Philadelphia	Red Oak	2.95/3.70	4.50/5.75	3.58/3.90	5.50/5.75
St. Louis	White Oak	2.25	.....	2.75	.....
	Red Oak	2.15	2.70*a*	2.60	3.25*a*
	Sap Pine or Cypress	.....	2.60*a*	.....	3.20*a*
San Francisco	Douglas Fir	2.41*ef*	3.32*ef*	3.48*bf*	5.10*caf*

Tr.—Treated; Untr.—Untreated. *a* Creosoted. *b* 7" x 9" x 8'. *c* Empty cell. *e* Green. *f* f.o.b. cars. * Add 75¢/tie freight charge to Birmingham; 35¢ from Montgomery.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.103
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	29.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.30
Soda ash, 58%, in paper bags, per 100 lb. dense	1.70
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.85
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	14.90

Avoid overtime with the new Ozalid Streamliner 400—

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MATERIALS AND LABOR PRICES

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over,			STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over,			BRICK Per M. in quantity		LIME Per ton, in paper, Carload lot,		
	3x12x12 in.	4x12x12 in.	8x12x12 in.	8x12x12 in.	10x12x12 in.	12x12x12 in.	Common backing	Straight hard	Hydrated finishing	Common hydrated	Pulverized or lump
Atlanta	$139.75	$139.75	$279.55	$314.45	......	......	$30.00	$30.00	.....	.....	.....
Baltimore	202.00	216.00	404.00	458.00	594.00	679.00	36.00k	41.00k	33.00	21.50	.....
Birmingham	126.00p	142.00p	253.00p	284.00p	354.00	438.00	27.00ff	32.00gg	29.25	24.00	.....
Boston	196.00†	209.00†	392.00†	283.75†	......	......	36.85p	40.35p	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	......	......	......	28.00	30.00	36.00	29.00	.....
Cincinnati	205.00j	215.00j	295.00jdd	......	......	......	45.00j	46.00j	27.50j	27.50j	.....
Cleveland	187.50**	200.00**	......	......	......	......	39.75	39.75	29.75	24.75	33.50ee
Dallas	......	118.00	......	......	......	......	19.75	32.25	32.00	21.80	.....
Denver	......	......	......	......	......	......	34.00	41.00	34.80bb	28.00bb	34.00bb
Detroit	130.00	138.00	259.00	......	315.00	360.00	40.50cc	41.00cc	36.00	32.00	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	29.25	29.25	32.00	27.50	28.50
Los Angeles	r	r	r	r	r	r	27.50§	.....	34.00	34.00	35.00
Minneapolis	181.00p	201.00p	414.00p	201.00pw	......	......	41.00*p	47.00	40.00bbe	30.00bbe	42.00bbde
Montreal	165.00aq	181.00au	325.00au	230.00	248.00s	......	39.50	46.00	39.20	22.00	13.75u
New Orleans	170.00	170.00	310.00	380.00	......	......	31.00	.....	.....	28.00	28.00
New York	151.90h	162.00h	222.70ch	245.40hn	......	......	41.00	.....	36.00	34.00	.....
Philadelphia	156.30	166.80	312.70	375.20	......	......	30/34	34/40	27.60	25.60	3.17
Pittsburgh	138.00	156.00	260.00	228.00	297.00	341.00	36.00	46.00y	25.00	23.00	2.97m
St. Louis	147.00cc	168.50cc	338.25cc	465.00cc	446.00	621.50	41.50el	43.00s	.95aaa	.75aaa	1.30aazpes
San Francisco	156.85a*	177.10a*	235.30dda*	......	......	......	39.50	.....	26.60	26.60	28.25
Seattle	225.00cc	250.00cc	350.00	250.00ccw	......	......	42.00s	54.00s	42.00shh	37.50	3.90mhh
Toronto	138.70	148.90	273.75	222.00f	......	......	41.50	59.00	40.50	33.50	29.00

*† F.o.b. yard Roxbury. *a Smooth. *b Per 50 lb. bags. *c 6 x 12 x 12 in.-3 cell. *d Pulverized hot. *e 5%, 10th following month. *f 8 x 8 x 12. *g 5½ x 8 x 12. *h F.o.b. trucks, job site N.Y.C. *j Truck load or over. *k $1.00 discount. *l Red face. *m Per bbl., 180 lb. *n 7¾ x 7¾ x 12. Speed title. *p Truck lots. *q Provincial and Municipal tax extra. *r Not used because of earthquake danger. *s 2% discount for cash. *t 5½ x 8 x 11¼. *u Tax exempt. *v Sand lime. *w 5 x 8 x 12. *y Stacked. *z Pebble lime price per 80 lb. sack. *aa Price per sack. Lime not sold per ton. *bb LCL. *cc Truck delivery. *dd 6 x 12 x 12. *ee Pebble lime. *ff 80% common. *gg Select. *hh lcl. § F.o.b. yard. *** Warehouse delivery. ** F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl.	WHITE LEAD Per 100 lb. in 100 lb. cases	READY-MIXED PAINT Per gal., drums			ROOFING SUPPLIES; Carload lots f.o.b. factory				
	Dry a	In oil w	Graphite b	Aluminum c	Ferric Oxide d	Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$18.25	$28.275	$3.26	$3.51	$3.01	$3.10	$2.91	$2.91	$0.60	$55.00
Baltimore	18.00	27.90	2.75	4.25	3.35	2.42	3.73	3.73	.44	48.32
Birmingham	18.25	28.275	3.90	3.40	....	2.78	2.55	2.55	.75ff	33.50ee
Boston	18.00	27.90	....	....	....	3.13g q	2.97og	2.97og	.42g	50.50g
Chicago	18.00	27.90	....	....	....	3.17‡u	3.02‡o	3.02‡o	42.00‡bbr	50.00‡
Cincinnati	18.00	27.90	....	....	....	2.88	2.60	2.60	.55y	49.36
Cleveland	18.00	27.90	2.29pgg	2.52gg	2.62gg	2.88q	2.60o	2.60o	.43y	42.70hh
Dallas	18.25	28.65	....	4.05	....	3.50q	3.75o	4.35o	.36	58.50hh
Denver	18.50	28.40	3.29	5.15	3.04	2.78	2.55o	2.55o	.43ff	45.00
Detroit	18.00	27.90	2.35	3.25	2.50	2.88	2.60f	2.60f	.55	46.00
Kansas City	18.00	28.65	3.50	3.00yz	2.65	2.78	2.58o	2.58o	.42	61.95
Los Angeles	18.00	28.15	3.30n	4.50n	4.20n	3.10n	2.25en	l	.64ny	l
Minneapolis	18.00	29.88/28.02	....	....	....	2.88dd	2.60hidd	2.60hidd	.48idd	44.00r
Montreal	......	21.95	2.95Dff	4.05Eff	3.25Fff	4.05t	3.60tf	3.60t	1.00kt	3.60k
New York	18.00	27.90	....	....	....	2.88G	2.60Go	2.60Go	.48Gz	44.00*
Philadelphia	18.00	27.90	3.60	3.40/3.65	3.50/4.60	2.54	2.94	2.94	.37	26.00
Pittsburgh	18.00	27.90	2.68	2.85	3.15	2.88	2.72o	2.72o	.43	54.00
St. Louis	18.00	27.90	....	....	....	2.63	2.55h	2.55h	.42y	51.21
San Francisco	18.00	28.15	2.40	....	3.40	2.79	4.00aa	....	.43	.....
Seattle	18.00	28.40	3.07mcc	2.93mcc	....	3.45mocc	2.91hmcc	....	.59mcc	52.00mcc
Toronto	......	......	....	....	....	4.45	4.10	....	1.45	85.00

*‡ Delivered. * Note: Red lead in oil 50¢ higher than white lead in oil. *a Red lead prices change frequently due to pig lead price changes. *b U. S. War Dept. Spec. 3-49A. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e 15 lb. *f Per 432 sq. ft. *g F.o.b. yard, Roxbury. *h Per roll, 65 lb. *i Net carload lot prices; Minneapolis and vicinity. *k Per cwt. *l Not used. *m 1% discount for cash. *n F.o.b. city. *o Per 60-lb. roll. *p 6-drum. 50 gal. ea. *q Per 90-lb. roll* -r F.o.b. factory, Chicago. *s 466 Med. *t Federal tax included. *u Per 90-lb. square. *v Per ton. *w Price to large paint contractors is $1.25 less. *x Mineral surfaced. *y 55-gallon container. *z Drums. *aa Approximate cost per 100 lbs. *bb Roofers coating and cement; Price per ton. *cc LCL, truck delivery. *dd 2% cash discount. *ee Asphalt pitch in 100 lb. package. *ff 5-gal. drums. *gg F.o.b. factory. *hh Incl. freight. *D Std. Black. *E Ready-mixed. *F Over 80% ferric oxide. ** Aver. wt. approx. 425 to 550 lbs. drums. *G Freight absorbed to destination not over .35 cwt.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER†		VERMICULITE†				ALUMINUM SHEETh		STAINLESS STEEL SHEET*-TYPE 302g		COPPER WATER TUBING-TYPE L 2000 ft lots per fta	
	Neat per ton	Gauging per ton	Home Insulation pellets	Plaster aggregate	Concrete AGGREGATEl Treated	Concrete AGGREGATEl Untreated	Flati .102" th 36"x96" & 48"x144" per lbi	Corr roof .032" th 35"x12" per shu	20 ga 48"x96-120" per cwthh	28 ga 36"x120" per cwtmm	⅜"b	½"c
			per bag of 4 cu ft									
Atlanta	$29.00	$36.00	$1.45	$1.35	$1.50	....	$0.359n	$7.067n	$53.68	$61.18	$14.49f	$20.29f
Baltimore	21.50	32.00	0.95	1.15	....	$1.15	0.391	0.427r	56.25	64.25	0.1874	0.2629
Birmingham	36.00	43.00	1.55	1.55	1.75	....	0.414	8.392	55.68	65.68	0.1727	0.2430
Boston	19.90	.....	1.15	1.18	....	1.30	0.44q	36.15op	55.81dd	61.585ddff	0.1704	0.2395
Chicago	25.20	25.20	1.45	1.50	1.50/1.60	....	0.43o	8.892‡p	57.55‡ee	65.55‡ee	0.1773	0.2496
Cincinnati	21.60**	21.60	1.75	1.75	1.85	1.75	0.400	8.34	57.60	69.30ff	0.1726	0.2430
Cleveland	26.00	40.00	1.25	1.32	1.40	....	0.369aa	7.569	58.25	63.25	20.63f	25.86f
Dallas	29.80	31.80	1.20	1.25	1.30	....	0.379	0.439r	55.00	63.00	0.1449	0.2029
Denver	24.00	24.00	1.40	1.30	....	1.50	0.437	8.89	57.32gg	65.32gg	0.1773	0.2496
Detroit	24.00	24.00	1.32	1.33	1.42	1.42	0.415	8.892	57.80	65.80	17.00foo	11.00f
Kansas City	30.00	35.00	1.20	1.30	1.40	....	0.416	9.94	60.72ee	68.72ee	18.74f	26.29f
Los Angeles	25.00	26.00	1.25ii	1.20ii	1.45ii	1.25ii	0.427	9.79	69.35	87.10	0.2252	0.2828
Minneapolis	31.00	31.00	1.30	1.60	....	1.80	0.425	7.68	58.26	71.01ff	0.1638d	0.2305d
Montreal	28.80	33.20	1.00	1.30	1.35	1.30	0.372	8.25	54.00	.....	0.29	0.350
New Orleans	35.00	37.00	1.50	1.20	1.25	1.25	0.359	0.366aabb	56.68	64.18	0.1449	0.2029
New York	23.00	29.00	1.25	1.20	1.40	1.30	0.43‡ov	8.50‡	58.42	66.42	20.16f	28.39f
Philadelphia	23/25	32.00	1.35	1.35	1.35	1.40	26.50‡wx	7.55‡	53.23‡	60.98‡	14.49f	20.29f
Pittsburgh	27.50	31.00	1.25	1.25	1.30	1.30	0.42	9.19	56.81	62.63	0.1923	0.2437
St. Louis	30.00	37.00	1.25	1.50jj	1.60jj	1.50	0.45io	8.89e	56.64kk	75.64kk	16.81fm	23.63fm
San Francisco	24.00	26.00	1.05	1.03	....	1.24	0.416	8.14cc	71.85	.....	0.1773	0.2496
Seattle	33.00	36.50	1.45	1.25k	1.65	....	0.369	7.569	64.75ee	72.75ee	0.1449	0.2029
Toronto	32.50	47.00	1.20	1.45	1.45	1.35	0.38	20.55	58.80	92.40	0.3065pp	0.3854pp

† trucklots, delivered * carload ‡ delivered *a fob city *b ½" O.D. *c ⅝" O.D. *d 10M ft & over *e 2-10M ft; 10M ft & up: $0.1925/ft *f per 100 ft *g 5 tons & up; cold roll, anneal & pickled; 2B finish *h 15M lb *i 3003 alloy; 1100 alloy: $0.456/lb *j 1100 & 3003 alloy, mill finish *k per bag of 3 cu ft *l treated has air entraining agent; untreated does not *m 2-10M ft *n fob plant, fr allow *o 5M lb & up *p 100 sq ft quantity *q 2M lb quantity *r per lb *t 36" x 96;- 10.81 lb/sh; 48" x 144":21.7 lb/sh *u 19.31 lb/sh *v in 4M-lb skids; $0.296/lb in 1M-lb cases *w 48" x 144" *x 36" x 96" $13.25/sh *aa 16M lb & up *bb fob mill *cc 26" x 6-12' *dd add $0.75/cwt for boxing *ee 4 tons & up *ff 26 ga *gg add $2/cwt boxing; $0.75/cwt on skids *hh Theoretical wt for 48" x 96"; 50.4-lb, per sh. *ii 300-bag lots *jj per 100-lb bag *kk mill shipment; add $2 per cwt for immediate del *mm Theoretical wt: 19.7-lb per sh *nn Deliv, warehouse means *oo ¼" O.D. *pp Incl 10% sales tax

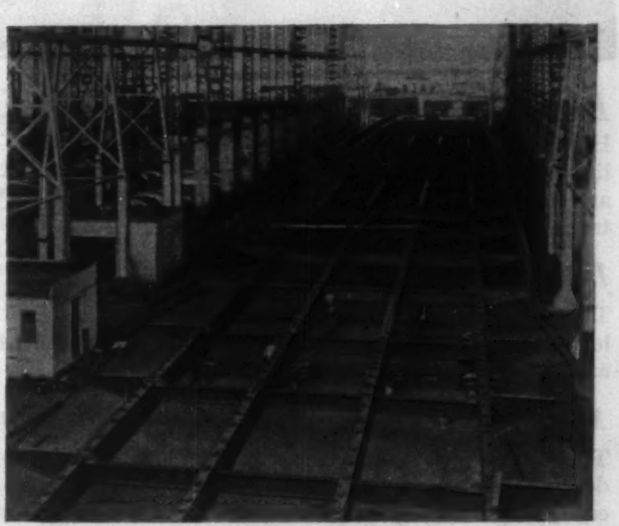
This graceful five-span structure bridging the Chena River near Fairbanks is 398 ft long and has a roadway width of 30 ft. Owner: *Alaska Road Commission, Juneau.* **General Contractor:** *Boen-Sealand Constructors, Seattle.* **Steel was erected by Isaacson Iron Works, Seattle.**

How they cut freight costs in building this Alaska bridge

This 398-ft, deck-girder bridge crosses the Chena River at a point near Fairbanks, Alaska. A glance at a map will show you that Fairbanks lies well over 460 miles from port, and the port itself is a long, long journey from Portland, Oregon, where the steelwork was to be fabricated. The Alaska Road Commission understandably preferred to see their money go into the bridge rather than into the cost of transporting it.

For this reason, Fought and Company, steel fabricators, used Mayari R wide-flange beams wherever feasible. With a yield point 50 pct higher than that of carbon structural steel, low-alloy, high-strength Mayari R could be employed in lighter sections to lower the deadweight of the bridge components, while assuring the needed strength in the finished structure. The decreased weight resulted in a significant saving in shipping costs.

Nearly every structural job carries some requirement which Mayari R can help solve. If not the cost of transportation, then perhaps unusually heavy load limits, or minimum deadweight, or long-term resistance to corrosion, impact or vibration. Our Catalog 353 contains plenty of examples of applications where these problems were involved. You can get a copy promptly through the Bethlehem office nearest you.



This is how the steelwork looked during fabricating stage, in the works of Fought and Company, Portland, Oregon, steel fabricators. Mayari R beams were used extensively to lower weight and cut shipping costs.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* **Bethlehem Steel Export Corporation**

BETHLEHEM STEEL

Mayari R makes it lighter... stronger... longer lasting

new style! new comfort! new power!
new Internationals!

New INTERNATIONAL "S-line" includes light, medium and heavy-duty models from 4,200 to 33,000 lbs. GVW, with 10 gasoline and LPG engines, every modern truck feature.

Functionally styled for practical good looks!

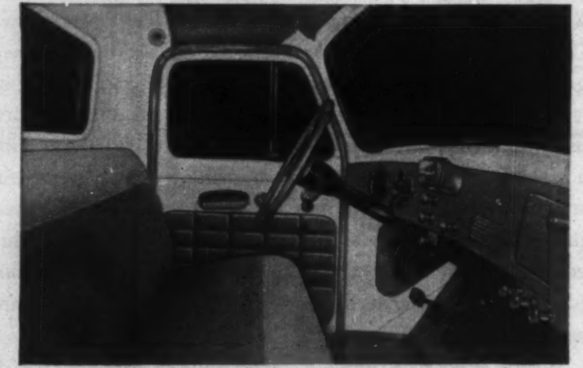
Here are the new INTERNATIONALS . . . a great new truck line from *any* point of view! Their clean-lined styling is trim and functional — designed to take the rough going of truck work without excessive repair costs.

Driver designed for real comfort!

They give you real comfort, too! They're driver-designed to let you work longer without fatigue. Loaded with performance and handling features that make hauling jobs easier.

More usable horsepower for BIG money savings!

These great INTERNATIONAL trucks offer more horsepower — develop their power for sustained operation at lower, more economical engine speeds. They're *all truck* with no passenger car engines or components asked to do a truck job. That saves you the BIG money — the over-the-years operating and maintenance money. Drive them today, at your INTERNATIONAL Dealer or Branch.



You relax in REAL comfort in Comfo-Vision cabs. Comfort-angled steering wheel. Low hood for closer view ahead. "Quiet-ride" roof lining, draft-free doors. Choice of 24 solid and optional two-tone exteriors. Optional deluxe cabs have color-keyed interior, chrome trim.

INTERNATIONAL HARVESTER COMPANY • CHICAGO

INTERNATIONAL® TRUCKS

All-Truck Built to save you the BIG money!

International Harvester Builds **McCORMICK®** Farm Equipment and **FARMALL®** Tractors . . . Motor Trucks Industrial Power . . . Refrigerators and Freezers

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft ½"	⅝"	GYPSUM BOARD LATH plain or perf per Msq ft ⅜" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft ½" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft ½" sq ed	25/32" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft ½"	MINERAL WOOL INSULATION† loose, per 40-lb bag a	3" batts per M sf	GLASS FIBER INSULATION† loose, per 40-lb bag a	3" batts per M sf	ALUMINUM FOIL 80# Kraft 1 side foil per roll of 250 s. f.	Expansible Blanket 2 layers foil per Msq.ft.
Atlanta	$75.00	$65.00	$45.00	$75.00	$75.00	$125.00	$75.00	$1.08	$75.00	$1.45b	$85.00	.....	.....
Baltimore	$49.25f	43.50f	31.30f	53.00f	65.00f	108.50f	69.00f	1.30	66.50	1.60	45.00	$4.00g	$33.50
Birmingham	67.00	56.00	46.75	75.00	73.50	124.00	72.50	1.32	70.00	1.60	80.00	3.87g	.....
Boston	46.50m	41.00m	31.50m	48.00m	64.00m	109.00m	79.00hn	1.45	75.00	1.40	56.00	5.80	54.50
Chicago	67.00	50.00	41.00	57.00	80.00	117.00	76.00	1.60	82/84	....	60/62bb	5.25	....
Cincinnati	46.40w	41.60w	30.80w	45.81w	65.00w	110.00w	65.00w	.....	61.00	1.25	75.00	2.81	50.00w
Cleveland	60.00	60.00	40.00	60.00	70.00	111.00	70.00	1.35/1.50	75.00	2.20	82.00	7.76dj	.....
Dallas	55.00	52.50	40.00	62.50	73.50	122.50	70.00	1.90	65.00	1.35	65.83	4.25	.....
Denver	60.00	52.50	40.00	60.00	72.90	123.00	71.90	....	71.00i	1.30	50.00	11.00r	21.00
Detroit	55.00	48.50	35.75	54.00	56.50	95.00	56.00	.....	.....	1.95b	76.00	....	.....
Kansas City	65.00	55.00	40.00	65.00	72.00	120.00	75.00	1.40	80.00	1.40	80.00	15.45dt	25.75
Los Angeles	57.50	50.00	0.31z	57.50	71.87	121.25	80.00	....	83.00	1.35s	64.00	17.00o	25.40
Minneapolis	72.00	63.00	0.40z	65.00	70.00	114.00	70.00	1.30	78.00	1.30	78.00	6.50	....
Montreal	60.00	52.00	39.00	53.00	60.00	....	62.00	1.00	62.00	1.00	62.00	20.00o	50.00
New Orleans	65.00	50.00	45.00	65.00	65.00	100/115	70.00	1.95	79.00	....	.....	15.66u	.....
New York	50.00	44.50	34.00	51.00	69.00	109.00	70.50	1.55	69.00	1.90	72.00l	5.20	48.80cc
Philadelphia	50.00	48.00	34.00	48.50	67.50	105.00	49.20	....	63/70	....	70/75	5.50/6	34.50/44.50
Pittsburgh	68.00	57.00	42.50	70.00	70.00	108.00	65.00	1.90	72.00	1.90	72.00	4.10	.....
St. Louis	58.00	52.50	39.00	58.50	65/72.50	115/120	75.00	1.70	80.00	1.30	69.00	5.50	.....
San Francisco	49.00c	42.75	0.33z	53.00k	58.00	94.00	56.00	1.60	66.50	1.55	66.50	4.82j	52.50
Seattle	57.50	50.50	40.00	59.00	71.40	120.35	70.20	1.50y	81.00	1.65s	62.00aa	4.25g	.....
Toronto	61.00	50.00	40.00	64.50	75.00	......	.....	0.90	47.00	....	51.00	14.40o	39.00

*a for hard packing *b per 30# bag *c carloads *d 40# kraft paper *f full trailer loads *g 80# kraft paper backing *h LCL *i flameproof $75.00 j 133 lin ft; per 100 roll
*k plain core; asph core $58/M sq ft *l 2-in: $52/M sq ft *m 10 ton quantities *n distributor's siding *o per Msf roll *p per sf *r per cwt *s per 35# bag *t per M sq ft
*u honeycomb, 1¼-in *w fob city *x per sq. yd. *y 26# bag *z 32# bag *aa fob warehouse *bb 2" *cc in 250 sf rolls, of 16", 20", or 24" width.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$3.25	$2.60	$2.95	$2.70	$2.875	$3.00	$3.15d	$1.38	$1.38
Baltimore	3.20d	2.75	3.325t	2.55/2.80Q	3.075t	3.075	3.075t	1.675t	1.675t
Birmingham	3.50	2.60	3.00k	2.42	2.82	3.075k	3.125k	1.375	1.475
Boston	3.35v	2.925k	3.475k	3.40	3.45l	3.25R	3.30d	2.22Y	2.22Y
Chicago	3.625k	3.375v	3.50k	3.225m	3.625y	3.53f	3.44**	2.575k	2.575k
Cincinnati	3.40	3.15	3.275k	2.925/3.175	3.225	3.41N	3.445Z	2.20	2.10
Cleveland	3.45k	3.40	3.40k	3.40	3.40	3.425	3.40d	2.65	2.65
Dallas	3.625	2.875	2.95	2.95a	3.437	3.00	3.185bb	1.50	1.50
Denver	3.50	2.975	2.975t	2.83	3.375t	3.00	3.20D	1.925	1.925
Detroit	3.58ee	3.324q	3.475P	3.30vz	3.49vl	3.655H	3.37k	2.55vz	2.55vz
Kansas City	3.625	2.85	3.00	3.045	3.325	3.18O	3.225k	2.105	2.13
Los Angeles	3.60	3.00d	3.325h	2.79d	3.75S	3.25	3.44d	2.275d	2.275d
Minneapolis	3.325	2.90	3.07	2.85	3.18Gv	3.29n	3.075d	2.15	2.15
New Orleans	3.175	2.60	2.975h	2.80	2.80	3.10k	3.10v	1.475	1.475
New York	4.15br	3.73bJ	4.075p	3.99J	4.35A	3.66aF	3.978bL	2.592V	2.592V
Philadelphia	3.92i	3.30	3.73jM	3.07/3.82r	3.65C	3.80ur	3.615g	2.025	2.325
Pittsburgh	3.725k	3.275k	3.375k	3.425k	3.575k	3.50	3.50k	2.175k	2.08d
St. Louis	3.625c	3.225h	3.225k	3.225	3.50k	3.60r	3.50E	2.275k	2.275k
San Francisco	3.75v	3.16s	3.35*	2.96s	3.66*	3.35U	3.56K	2.275r	2.275s
Seattle	3.50d	2.76d	3.07d	3.00d	3.25d	3.135X	3.31T	2.35d	2.35d
Montreal*†	2.10	1.90	2.00	1.80	2.12	2.10	2.12	1.50	1.50
Toronto**	2.558	2.392	2.39	2.45	2.496	2.60	2.444	1.40	1.40

* Cost of living bonus now included in basic wage. † Plus 8% fringe benefits ** Incl. 4% vacation fund. *a 6 hr. day. *b 7 hr. day. *c Incl. 3% vac. stamp fund plus 7½¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF. *d Incl. 10¢ H&WF. *e Incl. 10¢ VF. *f Incl. 6% WF. *g Incl. 11½¢ WF. *h $2.725 homes & housing plus 7½¢ WF. *i Incl. 17¢ WF. *j Incl. 10½¢ hr. WF. *k Incl. 7½¢ hr. WF. *l Incl. 4% VF *m Incl. 5¢ hr. WF. *n Incl. 8¢ H&WF, 6% VF, 1% PF. *o Incl. 10¢ PF, 7¢ WF. *p Incl. 3% WF, 3% PF. *q Incl. 10¢ ins; 4% vac. and holiday pay. *r Incl. 4% WF and 20¢ PF. *s Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. *t Incl. 7½¢ H&WF. *u Incl. 1½% PF. *v Incl. 10¢ WF. *w Negotiating. *x 5¢ VP. *y Incl. 22½¢ WF. *z Incl. 7½¢ IF, 5¢ H&WF. *A Incl. 15¢ WF, 15¢ PF, 20¢ B.F. *B Incl. 3% WF. *C Incl. 15¢ WF. *D Incl. 10¢ H& WF, 5¢ organ. *E Incl. 6% WF, plus travel pay per day. *F Plus $4 per day Annuity contrib. *G Incl. 3¢ Prom. *H Incl. 7¢ WF, 6% VF. *I Incl. 15¢ H&WF, 5¢ for Advtg. *J Incl. 5% WF, 6 PH. *K Incl. 11¢ WF, 12½¢ VF, 10¢ PF. *L Incl. 3% WF, 3% PF, 2% VF, 1% EF. *1 M Incl. 7½¢ PF. *N Incl. 1% WF. *O Incl. 10¢ WF, 1% PF. *P Incl. 10¢ hosp. ins.; 5¢ vac. * Q 1 drum, 2 drums $ 3.25/3.40. * R Incl. 12¢ WF and 1¢ apprentice. *S Incl. 12½¢ H and WF. *T Incl. 21¢ H, W & VF. *U Incl. 7½¢ WF, 4% VF. *V Incl. 5% WF, 3% PF. *W Incl. 2% F. *X Incl. 6¢ VF, & 7½¢ H & WF. *Y Incl. 7¢ H & WF. *Z Incl. 9½¢ WF. *aa Incl. 7¢ WF, 15¢ PF. *bb Incl 8¢ WF.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Aug. '55	Sept. '55
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.19	1.19
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	1.19	1.19
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.25	2.25
Struct. Iron Workers (8 hr. day) .....Remachadores.	av. per hr.	1.37*	1.37*
Struct. Steel Shapes			
3"-15" x 12 meters	per metric ton	1490.00	1564.50
Reinf. Steel, Corr. Rods			
⅜" x 11 meters	per ton	1490.00	1564.50
½" x 11 meters	per ton	1490.00	1564.50
⅝" x 11 meters	per ton	1490.00	1564.50
¾" x 11 meters	per ton	1490.00	1564.50
⅞" x 11 meters	per ton	1490.00	1564.50
1" x 11 meters	per ton	1490.00	1564.50
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	70.00	70.00
Rose Gravel	per tr. load	65.00	65.00
Cement, Std. Port. (Tolteca)	per ton	185.00	185.00
Lumber			
3rd Class Pine	per M ft.	1400.00	1400.00
1st Class Pine	per M ft.	2000.00	2000.00
2nd Class Pine	per M ft.	1800.00	1800.00

* 1st & 2nd floors. Aver rate 4.38

ENR Skilled Average (Bricklayers, Carpenters Iron workers): $3.286. ENR Common Average $2.093

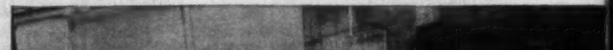
EQUIPMENT OPERATOR WAGE RATES

	Truck drivers 1½ T	Truck drivers −4 cy Dump	Truck drivers +4 cy	Tractor Operators incl bulldozers 34-49 hp	70-100 hp	100 & over	Tractor scraper 15-16 cy	Power cranes & shovels ½ cy	¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$1.50pp	....	....	$2.425	$2.425	$2.425	$2.425	$2.95	$2.95	$2.425	$2.20	$1.60
Baltimore	1.675*	1.825u	1.925*	2.85/3.00b	2.85/3.00b	2.85/3.00b	285/3.00b	3.25/3.40b	3.25/3.40b	2.85/3.00b	2.85/3.00b	2.25
Birmingham	1.59	1.85ff	1.92gg	2.56	2.56	2.56	2.70	2.70	2.70	2.61	2.285	1.625
Boston	1.945c	.....	.....	3.025d	3.025d	3.025d	3.025d	3.40	3.40	3.40	2.555	2.22s
Chicago	2.12fii	.....	.....	2.90ag	3.05ah	3.16ai	2.90a	3.50n	3.50a	3.00a	3.00a	....
Cincinnati	2.10**	2.20**	2.30**	2.925	2.925	2.925	2.925	3.175	3.175	3.175	3.175	3.175
Cleveland	2.42m	2.42m	2.42m	3.15	3.15	3.15	3.15	3.40	3.40	3.15k	3.025	3.025
Dallas	1.50	1.50	1.50	1.50/2.625l	1.50/2.625l	1.50/2.625l	1.50/2.625l	1.50/2.625l	1.60/2.625l	1.60/2.625l	1.50/2.00l	1.50/1.55l
Denver	2.05	2.05	2.15	2.66	2.66	2.66	2.66	2.83	2.83	2.66	2.66	2.275
Detroit	2.35**	2.35**	2.35**	3.30m	3.30m	3.30m	3.30m	3.30m	3.30m	3.30m	3.025m	2.68m
Kansas City	2.065n	2.065o	2.14p	2.25	2.80q	2.80q	2.80r	3.045	3.045	2.66	2.80t	2.19
Los Angeles	2.38u	2.38u	2.41u	2.87m	2.87m	2.87m	3.28m	3.10m	3.10m	3.01m	2.59m	2.485u
Minneapolis	2.15	2.15v	2.30w	2.53	2.75q	2.97x	2.75	2.97y	3.23z	2.53	2.42	2.25
New Orleans	1.575	1.575	1.575	2.80	2.80	2.80	2.80	2.80	2.80	2.80	2.15	1.575
New York	2.12½aa	2.52bb	2.52bb	3.33cc	3.33cc	3.33cc	3.465cc	4.25cc	4.25cc	3.465cc	3.465cc	2.94cc
Philadelphia	1.90/2.10u	1.90/2.10u	1.90/2.10u	3.17/3.92m	3.17/3.92m	3.17/3.92m	3.17/3.92m	3.17/3.92m	3.17/3.92m	3.17/3.92m	2.99m	2.15m
Pittsburgh	2.275u	2.275u	2.275u	2.95u	3.275u	3.325u	3.325u	3.425u	3.425u	3.325u	3.325u	2.275u
St. Louis	2.275***	.....	.....	3.225kk	3.225kk	3.225kk	3.225kk	3.225kk	3.225kk	3.225kk	2.675kk	2.2675kk
San Francisco	2.30u	2.30u	2.315u	3.07m	3.07m	3.07m	3.07m	3.40m	3.40m	3.23m	2.68m	2.40m
Seattle	2.60nu	2.60ndd	2.80nee	2.75m	2.95m	2.95m	2.95m	3.30	3.30m	3.05m	2.75m	2.62m
Montreal ll	1.30	1.30	1.30	1.73	1.73	1.73	1.73	1.99	1.99	1.73	1.80	1.60
Toronto	1.51ii	1.51ii	1.72ii	1.98ii	1.98ii	1.98ii	1.98ii	2.45ii	2.45ii	....	2.13ii	2.13ii

*a incl 5¢/hr HWF *b lower rates, straight time, other broken *c 2-axle; 10-wheel $2.00; Euclid $2.20 *d Intermediate *e bldg constr; highway $2.145 *f less than 2-t *g blad
*h scoop, bldg *i scoop, road *j plus $2 pd by employer for hosp. death benefits to family *k bldg constr; steel constr $3.40 *l higher rates are union, other taken from min wag
scale approved by County Commissioners Court *m incl 10¢ H&WF *n flatbed *o under 10 cy *p over 10 cy *q over 50 hp *r blade grader *s form and subgrade *t singl
*u incl 7½¢ HWF *v up to 6 cy *w 6-8 cy *x cat oper *y up to 3½ cy *z 3½ cy & over *aa plus approx $5.30 per wk W&PF *bb incl 3% WF, 2% PF, 11 PH *cc incl 5% WF
*dd up to 5 cy *ee 5 cy & over *ff over 1½ T but not incl 3 *gg over 3 but not incl 5 tons *hh excavating *ii incl 4% VP *jj includes 12¢ H, W & PF *kk 7½¢ WF included
n base pay *ll Plus 8% fringe benefits *nn 8 cy or less; 8-16 cy $2.875; 16-25 cy $3.125 *oo Plus $2.25/wk WF *pp 2-5 T $1.70.

ALLIS-CHALMERS Helps Milwaukee

To Keep Pace With Population-Business Growth of Wisconsin's Largest City



IN HUSTLING, BUSTLING MILWAUKEE, water is used at the rate of 175 gallons per day per person. Within the 100-sq-mile metropolitan area of Milwaukee, there are nearly a million people . . . and 2000 thriving manufacturing firms, including world leaders in the production of heavy industrial machinery, beer, motorcycles, tractors, diesel and gasoline engines . . . all using water in increasing amounts.

Milwaukee's water is obtained from Lake Michigan — through an intake over a mile out and 67 feet deep. Consumption climbed from 22 billion gallons in 1924 to 48 billion in 1954. A record month's high — 6¼ billion gallons — was pumped in August 1955.

Allis-Chalmers equipment now operating in Milwaukee's water system includes large vertical pumping engines — dating back as far as 1890 — at the North Point station, and steam and motor-driven units, electrical equipment and valves at the Riverside station, filtration plant and booster stations. In 1955, as part of a continuing modernization and expansion program, two A-C 30-mgd, motor-driven pumps, with controls, substation and butterfly valves, were put into service at the Riverside station.

When YOUR CITY plans expansion or modernization, do as other progressive communities are doing — call the nearest A-C office, or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin.

A-4856

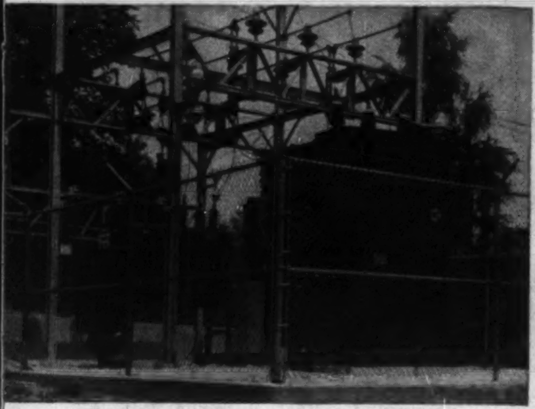
Builders of World's Widest Range of Public Works Equipment

Pumps; motors, Texrope drives, control; switchgear, substations, transformers; butterfly valves; steam turbine-generator units, condensers, hydraulic turbines and generators, engine-generator units; blowers, compressors, vacuum pumps; dryers, screens, mills, sifters; tractors, graders, scrapers, motor wagons, power units.

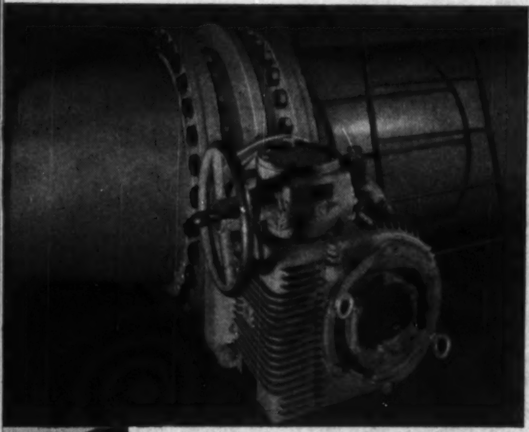
ALLIS-

Milwaukee Journal Photo

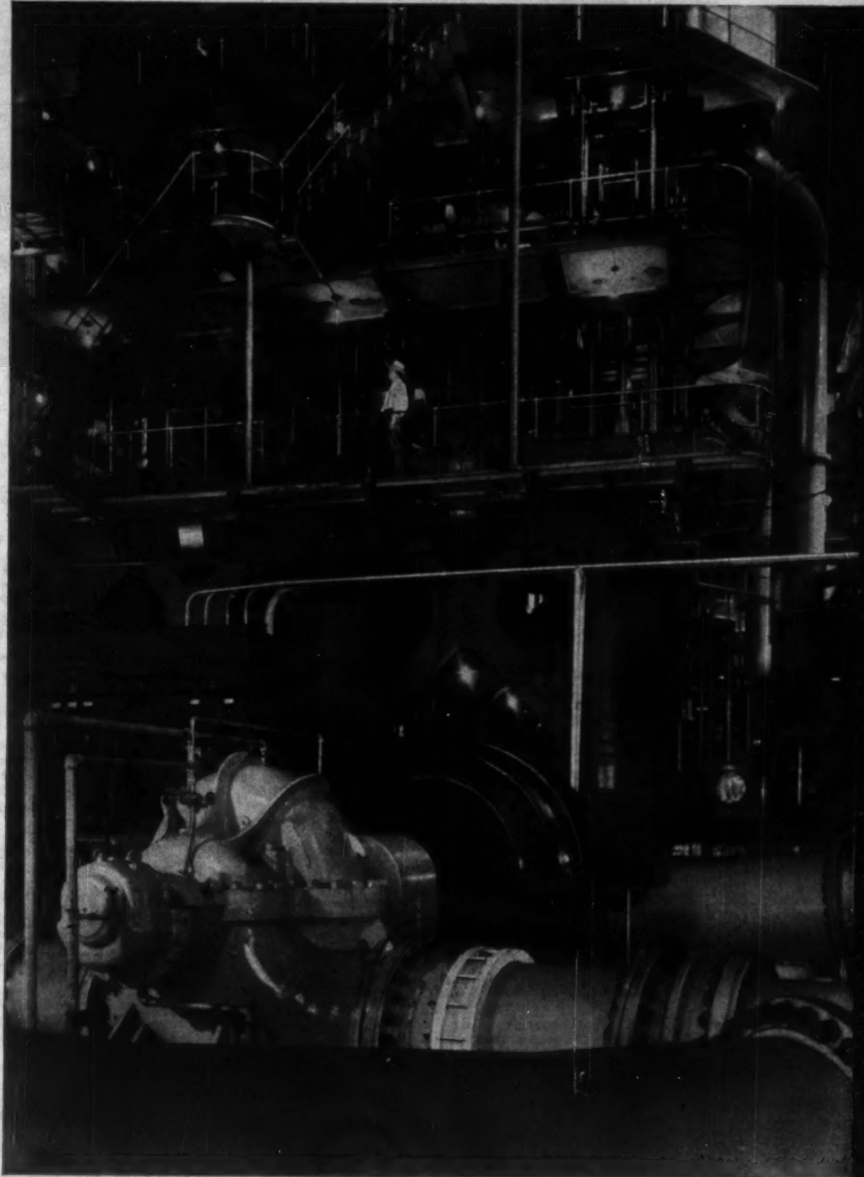
Modernize and Expand Water Works



Allis-Chalmers outdoor substation protects and controls the electrical power supply for Milwaukee's Riverside pumping station.



Close-up showing one of several of the latest Allis-Chalmers butterfly valves installed at the Riverside station. A-C builds many designs of valves, including units conforming to American Water Works Standards.



View of Riverside station installation dramatizes progress in pump design in the past 30 years. Towering pumping engine in background was record setter in 1924 and is still going strong. But at best it pumps only two-thirds of the water handled by compact new A-C pump in foreground.

Two new Allis-Chalmers 30-mgd pumps and their 2000-hp synchronous motors and controls were fitted into space formerly occupied by one 30-year-old, 15-mgd vertical pumping engine.

Texrope is an Allis-Chalmers trademark.

CHALMERS

A-C
ALLIS-CHALMERS

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

▲ **Conn., West Hartford**—SCHOOL—BA 10/9—Town, Mrs. Gordon L. Spencer, secy. School Bldg. Comn., Town Hall, elementary school, Braeburn Rd. $1,248,000. Plans deposit $50. Extended date. Louis J. Drakos, 967 Farmington Ave., archt. CD 8/31.

▲ **Conn., North Haven**—MANUFACTURING, etc.—BA 10/11—Pratt & Whitney Aircraft Div., United Aircraft Corp., 400 Main St., East Hartford, 681x723 ft. manufacturing and office, Washington Ave. $5,000,000. F. A. Fairbrother, George H. Miehls, 345 New Center Bldg., Detroit, Mich., archts. Albert Kahn Associated Architects & Engineers, Inc., New Center Bldg., Detroit, Mich., assoc. archt.

BUILDINGS—LB & CA

▲ **White Constr. Co.**, 376 Boylston St., Boston, Mass. LB **$1,988,151.** HIGH SCHOOL, Pond St., HA[illegible]N, MASS. Town, South Main St., Sharon, Mass. Bids Sept. 22. CD 8/17.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲† **New York**—BA About 12/15—U. S. Eng., Engineer Park, Niagara and Bridge Sts., Buffalo, Zone 7, Robinson Bay Lock, St. Lawrence Seaway, St. Lawrence River, 860 ft. lock in length from pintle to pintle and 80 ft. width, gravity type walls constructed of mass concrete, approx. 3½ mi. N.-N. E. of Massena, St. Lawrence County, for St. Lawrence Seaway Development Corp., CIV. ENG. 30-023-56-17. Plans deposit $25. CD 9/9/54.

BUILDINGS—BA

▲ **N. J., Camden**—SCHOOL—BA 10/13—Bd. Educ., City Hall, Junior High School, 7 and Erie Sts., $2,250,000. Edwards & Green, 17-19 S. 5 St., archts. CD 1/8/53.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—Bureau & Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,

N. Y.—**Yonkers Contg. Co.**, 959 Midland Ave., Yonkers, N. Y. LB **$2,995,564.** 4.48 mi. portion Erie section Thruway, starting Cain Rd. 1 mi. south Angola northeast on east side of Rte. 20 to Evans Center-Eden Rd., Erie Co.; LB **$2,792,824.** constr. 4.86 mi. portion Erie Section Thruway starting west Foret Rd., southwest Brocton, exten. northeast between Rtes. 5 and 20 to Lake Ave., near Brocton, Chautauqua Co.;

N. Y.—**De Lillo Constr. Co., Inc.**, 71-51 51 Ave., Woodside, L. I., N. Y. LB **$724,748.** 1.32 mi. section Peninsula Blvd. from Lexington St. Northward along Western edge Rockville Centre between Hempstead Reservoir and North Village Ave. to Southern State Parkway, Nassau Co.;

N. Y.—**Callanan Road Imprvt. Co.**, South Bethlehem, N. Y. LB **$151,349.** grading, paving, in preparation for constr. thruway maintenance bldgs. at Albany, Albany Co., Catskill, Greene Co. and Kingston, Ulster Co.;

N. Y.—**Anchore Post Fence Div., Anchor Post Products, Inc.**, 32 Buckingham Dr., Albany, N. Y. LB **$98,096.** chain link fence from New York City line to East approach thruway's Hudson River Bridge between Tarrytown and South Nyack, Westchester Co. Bids Sept. 22. CD 8/29.

▲ **Jandous Electric Constr. Corp. & Lord Electric Co., Inc.**, 210 E. 40 St., New York 17, N. Y. LB **$2,196,000,** installing signal equip. for Third Ave. line, 149 St. to 219 St., Bronx Boro. Contr. S 68, NEW YORK. New York Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Sept. 23. CD 8/2.

▲ **Hendrickson Brothers, Inc.**, 63 N. Central Ave., Valley Stream, N. Y., CA **$3,954,060,** lateral sewers vicinity of Valley Stream and Malverne, town of Hempstead, sewage collection, Dist. No. 2-VS, Contr. No. 1002-2-VS-4, MINEOLA, N. Y. Bd. Supervs. Nassau Co., Old County Court House, Mineola, N. Y. CD 9/8, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,

Pa.—**M & S Constr. Co., Inc.**, 1558 Electric Ave., East Pittsburgh, Pa. CA **$1,477,298.** rein.-con. pavement 24 to 36 ft. wide. two concrete arches, divided hy., rein.-con. bridge and I-beam bridge 708. mi. between Johnsonburg and Ridgeway, T. R. U. S. 219, Elk Co.;

Pa.—**Fred W. Ewing, Inc.**, 405 W. Main St., Corry, Pa. CA **$559,162.** wid'n., surf., bit. surf. 22 ft. width, exten. 6 structures, 7.4 mi., from Pittsfield northwesterly, U. S. 6, Warren Co.;

Pa.—**J. Paul Laubach**, P. O. Box 68, Benton, Pa. CA **$665,111.** wid'n., surf. 22 ft. in width, exten. several structures, bridges, constr. I-beam bridge and two rein.-con. bridges 6.08 mi. between Gillett and Columbia Cross Rds., T.R. 14, Bradford Co. Grand total $2,701,571. CD 9/14, under LB.

BUILDINGS—LB & CA

▲ **Briarcliff Meadows Homes**, c/o Ralph H. Segal, archt., 36 E. 40 St., New York 17, N. Y. Owner Builds. **$3,000,000.** 85 HOUSES on tract on Pleasantville Rd. near Route 9A, BRIARCLIFF MANOR, N. Y.

▲ **Sunset Ridge Homes**, c/o Strathmore Agency, East Jericho Turnpike, Huntington, N. Y. Owner Builds. **$3,000,000.** 350 HOUSES on tract on Indian Head Rd. north of Jericho Turnpike, KINGS PARK, N. Y.

▲ **200 E. 57 St. Corp.**, 1 E. 57 St., New York 22, N. Y. Separate Contracts. **$1,518,000.** 18 story APARTMENT, 200-208 E. 57 St., NEW YORK, N. Y. CD 5/10.

▲ **Walter Kidde Constructors**, 140 Cedar St., New York 6, [illegible] Y., C[illegible] 00,000-$6,000,000. design and co[illegible] MFG. [illegible] NT [illegible] 5 acre tract betw[illegible] 1 and [illegible]ylvania R.R., near NEW B[illegible] N. J. Johnson & Johnson, 1940 George St., [illegible]ick, N. J.

▲ **Upper Montclair Estates**, c/o Herman Neumann, archts., 250 [illegible]th Ave., New York 1, N. Y., Owner Builds, **$2,5[illegible]000.** 51 HOUSES on tract on Club Road near Grove St., UPPER MONTCLAIR, N. J.

▲ **Joseph Barness & Son, and Morris Kravitz**, 225 S. 15 St., Phila., Pa., Separate Contracts, **$5,000,000,** SHOPPING CENTER, BRANCH BANK, MEDICAL CENTER, OFFICE AREA BLDG., parking, DOYLESTOWN, PA. George W. Neff, 1520 Locust St., Phila., Pa., archt.

▲ **Richard G. Kelly**, 6844 Market St., Upper Darby, Pa., Separate Contracts, **$1,500,000,** RESIDENTIAL DEVELOPMENT, Pennel Rd. in Aston Twps., MEDIA, PA. Erling Wenge, McClatchy Bld., Upper Darby, Pa., archt.

▲ **Koppers Co., Inc.**, Koppers Bldg., Pittsburgh 19, Pa. CA Total Est. **$15,000,000.** 19 oven COKE BATTERY, auxiliary equip. primary cooler, final cooler, coke pusher and handling equip. and electrostatic precipitator, MONESSEN, PA. Pittsburgh Steel Co., Grant Bldg., Pittsburgh, Pa.

▲† **Joseph B. Bahen Constr. Co., Inc.**, 418 Randolph St. N.W., Wash., D. C., CA, **$3,950,000.** PRE-CLINICAL MEDICAL BLDG., Howard University, WASH., D. C. General Services Admin., P. Bldg. Service, General Services Bldg., 19 and F Sts. N.W., Wash. 25, D. C. Bids Aug. 23, awarded Sept. 22. CD 8/25, under LB.

▲ **Alfred J. Vilone**, 2213 Concord Ave., Fairfax, Wilmington, Del., Separate Contracts, **$4,000,000,** RESIDENTIAL DEVELOPMENT, Maxwell Farm, NEWARK, DEL.

SOUTH

HEAVY CONSTRUCTION—LB & CA

▲ **FLORIDA**—State Road Dpt., Tallahassee,

Cleary Bros. Constr Co., Box 6815, West Palm Beach, Fla., LB, **$2,152,761.** (1) Structures A and C each consisting of 36 ft. concrete approach spans,, double leaf bascule span and one steel concrete flanking span at each end of bascule span (2) Structures B and D consisting of 36 ft. concrete spans, (3) embankment (4) toll facilities 5,260 lin. ft. Road A-1A, over St. Lucie and Indian Rivers, Job 8904-175, Martin Co. Bids Sept. 20. CD 8/30.

▲ **FLORIDA**—State Road Dpt., Tallahassee,

R. H. Wright & Son, 1050 N. E. 5 Terrace, Fort Lauderdale, Fla., CA **$1,450,550.** stab. road[illegible], rock base with surf. and b. conc. surf. course, storm sewers, curb, gutter, sidewalk 2.5/1 mi. State Road 25-A, U-019-1 (2), Job 8725-250, Dade Co. Bids Aug. 30. CD 9/2, under LB.

MIDDLE WEST

BUILDINGS—LB & CA

▲ **Paugh & Brown, Inc.**, 6007 Euclid Ave., Cleveland, O. CA Est. **$1,500,000.** enlarging Lee-Harvard SHOPPING CENTER to 50 stores, first unit 20,000 ft. supermarket, CLEVELAND, O. Selected Stores, Inc., B. L. Boykin, pres., National City Bank Bldg., Cleveland 14, O. Weinberg & Teare, Citizens Bldg., Cleveland, O., archts. Awarded Sept. 20.

▲ **McCarthy Bros. Constr. Co.**, 4903 Delmar Blvd. St. Louis 8, Mo., LB **$1,922,945.** general contract 1, 2, 3 and 4 story, 100-bed HOSPITAL, CHAPEL, NURSES HOME, BOILER HOUSE, etc. CENTRALIA, ILL. St. Mary's Hospital, Centralia, Ill. Bids Sept. 15, CD 8/30;
Fowler Plumbing & Heating Co., 217 E. 2 St., Centralia, Ill., LB **$981,900** (mechanical work).

▲ **Hoeppner-Bartlett Co.**, 631 E. Madison St., Eau Claire, Wis., CA, **$1,693,700.** general contract Senior HIGH SCHOOL, EAU CLAIRE, WIS. Bd. Educ., 118 Mappa St., Eau Claire, Wis. Bids Aug. 17. CD 8/23, under LB.

WEST OF MISSISSIPPI

BUILDINGS—LB & CA

▲ **R. F. Ball—Southwest Ball Constr. Co.**, 1430 E. Houston St., Box 1057, San Antonio, Tex., CA, **$4,748,922.** SENIOR HIGH SCHOOL, CEDAR RAPIDS, IOWA. Independent School Dist., 346 2 Ave. S. W., Cedar Rapids, Iowa. Bids Aug. 18. CD 8/26, under LB.

▲ **MacDonald Engineering Co.**, 22 W. Madison St., Chicago, Ill. CA Total est. **$2,000,000.** design and construct expansion of PLANT to double capacity, SUGAR CREEK, MO. Missouri Portland Cement Co., 3615 Olive St., St. Louis, Mo.

▲ **Allis-Chaimers Mfg. Co.**, 1126 S. 70 St., Milwaukee, Wis., CA Est. **$2,000,000.** design and construct CEMENT MILL addn. and store facilities, ADA, OKLA. Ideal Cement Co., Denver National Bank Bldg., Denver, Colo. CD 6/6.

FAR WEST

HEAVY CONSTRUCTION—LB & CA

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Stolte, Inc., Gallagher & Burk, Inc., 8451 San Leandro St., Oakland, Calif., LB, **$2,638,616,** est. $3,000,000 (7 bidders) grading, paving 2.8 mi. Sign Route 24 between Oakland Blvd. and 0.3 mi. north of Monument in Walnut Creek and constr. bridges, Contra Costa Co. Bids Sept. 21. CD 8/29.

BUILDINGS—LB & CA

▲ **Bechtel Corp.**, 3380 Wilshire Blvd., Los Angeles, Calif., CA **$4,000,000.** design and construct 400,000 sq. ft. PLANT addn. to mfg. styrofoam, TORRANCE, CALIF. Dow Chemical Co., Midland, Mich. CD 11/28/52.

CANADA

BUILDINGS—SLC

▲ **Que., Montreal** — SCHOOL — Les Rev. Soeurs, Ste. Anne, 1950 Provost St., Lachine, soon lets general contract 4 and 5 story, bsmnt., H-shaped, rein-con., stone, brick, "Cardinal Leger" normal school. $3,000,000. Larose & Larose, 8 Roselawn Cres., Mount Royal, archts. Brouellet & Carmle, 3600 Barclay Ave., engrs.

(Continued on page 86)

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings, $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction
(In order of Listings)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED
New England
Middle Atlantic
South
Middle West
West of Mississippi
Far West

PROPOSED WORK
Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Public Buildings
Mass Housing
Commercial Buildings
Industrial Buildings
Unclassified

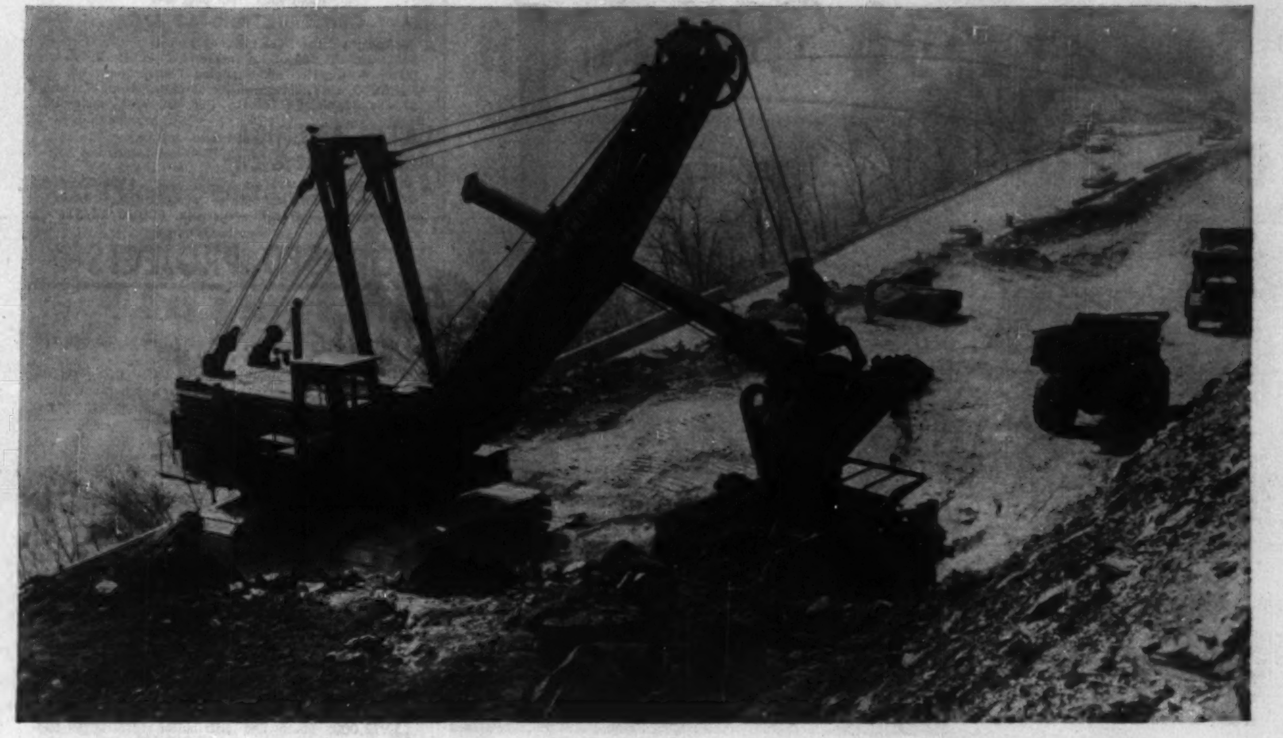
In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.
CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.
CD dates shown are of Construction Daily issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.



How a 5½ yard shovel, spotted on narrow benches, digs and trims a 284′ deep highway cut

Manitowoc 4500 excavates 600 yards per hour for Bruns Coal Company of Zanesville, Ohio, on highway widening job at Steubenville, Ohio

The Manitowoc Model 4500 will move most of nine hundred thousand yards of material to be excavated during the widening and modernization of 1.823 miles of Ohio State Highway #7 . . . Jefferson County, Ohio. Bruns Coal Company is working their 5½ Yd. rig two 8-hour shifts per day, digging through alternate layers of slate rock, coal seams, slate clay, flint clay and boulders. Blasting ahead of the machine cannot be uniform because of the layered quality of the soil, yet the Manitowoc digs as much as 600 yards per hour.

Bruns uses six 15 Yd. Euclid hauling units moving spoil from the big cut. The narrow benches are so cramped that the shovel must swing out over the lip of the cut when loading. The Manitowoc has a ground bearing pressure of only 9.6 pounds per square inch . . . (less than most one-yard machines)— and is exceptionally compact for a big machine (tailswing radius 19′4″). These factors plus the elevated pilot house (operator's eye level — 15′) warrant record yardages without interruption of highway traffic directly below.

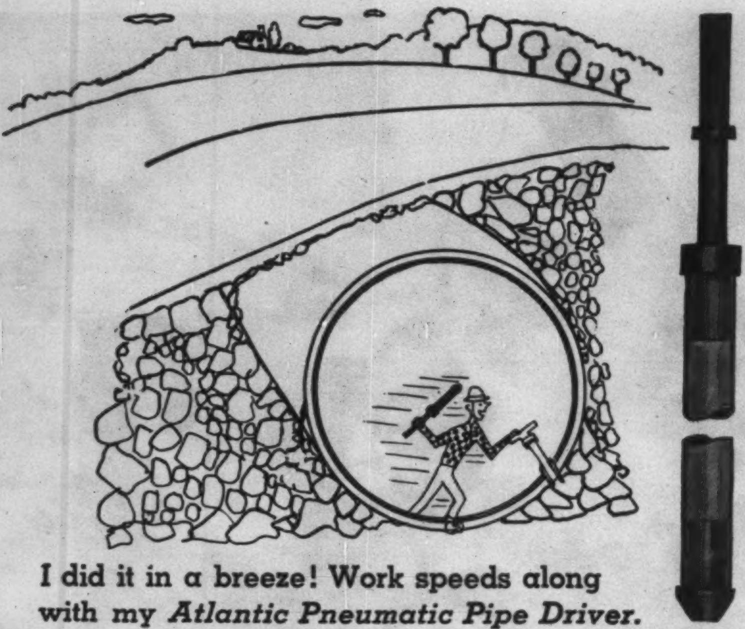
Another Manitowoc feature, the tubular dipper stick, has proven its worth in this excavation where the dipper encounters boulder, coal, slate, and clay during one digging cycle. Twisting, uneven digging forces only dip the dipper slightly and transmit no strain to the boom or shipper shaft, yet lift of the hoist rope maintains an upright dipper position and digging shocks are absorbed without the damage which might necessitate excessive maintenance in any other rig.

Besides the drill rig and hauling units, the Manitowoc is the only other machine on this cut. *Controlled Power* . . . Single diesel engine with a torque converter power take-off gives ample flexible power and speed. 52″ drum brakes and 49″ clutches, are air operated for the smooth, precise control necessary to cut, trim and finish this 284′ deep 1-to-1 slope!

Modern highway construction hinges on the ability and capacity of larger, more efficient equipment. More and more contractors are using Manitowoc Model 4500's for roadwork because of record capacity and extreme mobility. Bid your next job on the basis of a Manitowoc.

Manitowoc Engineering Corp., Manitowoc, Wis.

. . . working in close quarters, Manitowoc hangs over the highway, where traffic continues without stop.



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The Atlantic Pneumatic Pipe Driver is fast! No delay in coupling additional lengths of pipe—specially designed recess in driving head does not burr pipe. Universal joint action between driving head and shank simplifies driving in small spaces. Wide size range. Fits standard pneumatic pavement breakers. Send for Booklet 4.

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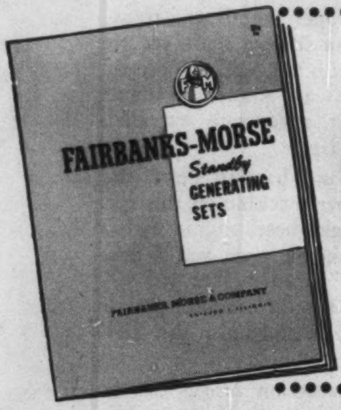

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(Continued from page 84)

HEAVY CONSTRUCTION—LB & CA

▲ **McNamara Constr. Co. Ltd.,** 42 Industrial St., Toronto, Ont., CA, $1,542,000. Intake No. 2, R. C. Harris Water Purification and Pumping Plant, Queen St. E., TORONTO, ONT. Municipality of Metropolitan Toronto, 67 Adelaide St. E., Toronto, Ont. CD 9/20, under LB.

LATIN AMERICA

BUILDINGS—LB & CA

▲ **Fiat,** Turin, Italy, CA Total est., $124,000,000, STEEL MILL, Bolivar State, VENEZUELA. Republic of Venezuela, Caracas, Venezuela. CD 6/14/51.

PROPOSED PROJECTS

WATER SUPPLY

▲ **Calif., Monrovia**—City, City Hall, voted $1,640,310 bonds, water system imprvs. CD 8/17.

▲ **Ky., Newport**—Campbell County Water Dist., Fourth and York Sts., project abandoned, water plant, incl. mfg. treatment, standby and pumping facilities, $1,934,600. CD 7/18.

▲ **Neb., Omaha**—Metropolitan Utilities Dist., 18 and Harney Sts., 54 in. water main from 30th and Ernst Sts. to 31st and Binney Sts. $1,000,000. J. C. Detweiler, c/o owner, water engr.

▲ **Okla., Duncan**—City, voted bonds Sept. 13, reservoir and WW exten. $1,800,000. J. B. Davidson, city engr. CD 8/1.

▲ **Tex., Beaumont**—City, City Hall, defeated bonds Sept. 13, water pumping unit, $150,000; water storage, $100,000; c.i. water mains, $1,500,000; water distr. sys. $3,450,000. CD 8/24.

▲ **Wash., Seattle**—City, County-City Bldg., Seattle, Zone 4, 2 pipe lines from Tolt River $7,000,000 each, first to be completed by 1960 second by 1971; dam on Tolt River $3,500,000; Tolt River diversion work, $450,000; connecting line from Rivers' north fork $625,000; Lake Forest Park reservoir, $1,000,000, work to start 1958; North End distribution feeders, $3,972,000; South End distribution feeders, $4,100-000; relining old steel pipe $2,260,000; replacing and enlarging Lake Youngs supply lines $2,712,000; dam on Cedar Lake, $2,000,000. CD 5/14/54; pipe line to Mercer Island, $1,440,000, CD 3/22/54; South Central distribt. lines, $1,700,000.

SEWERS, WASTE DISPOSAL

Fla., Miami—City, 3332 Pan American Dr., Zone 33, $825,000 bond election Nov. 8, 300 ton incinerator at Coconut Grove.

▲ **Md., Hyattsville** — Washington Suburban Sanitary Comn., Hamilton St.,

Rock Creek trunk sewer, to extend the Rock Creek trunk sewer to confluence of Rock and Mill Creeks, construct outfall sewer up Mill Creek to its headquarters at Washington Grove, constr. sewage pumping station and force main, Gaithersburg, Rockville, $1,159,700;

Henson Creek trunk sewer incl. trunk sewer from Morningside to Bock Rd., pumping station and force main, Suitland, $1,147,200;

Cabin John Creek trunk sewer to take care of Cabin John Valley with 7 mi. trunk line connecting with Rockville, Cabin John, $976,300;

Indian Creek trunk sewer to provide eventual elimination of Greenbelt sewage treatment plant, College Park, $480,900;

Paint Branch trunk sewer to exten. line from terminus at University of Maryland to point opposite Hollywood subdivision, Hollywood, $846,900;

Largo sewage pumping station and force main, Southwest Branch of Patuxent River, Largo, $189,700;

Patuxent trunk sewer, Laurel, $212,000;

interceptor to take sewage from Howard County area to Patuxent trunk sewer, Laurel, $100,100;

sewage works, first unit at point east of Baltimore-Washington Parkway, along Patuxent River, 2nd unit built at later date, Laurel, $800,000;

Brier Ditch-Seabrook proj., trunk sewer, sewage pumping stations and force mains, Riverdale and Lanham, $635,400;

Northwest Branch trunk sewer to exten. this line to the confluence of Northwest and Little Northwest Branches above Glenmount Rd., Silver Spring, $721,000;

Sligo Branch relief sewer, Takoma Park, $94,600.

▲ **Ont., Kitchener**—City, City Hall, sewage treatment plant extens. $2,000,000. CD 6/24/53.

BRIDGES

▲ **Fla., Miami**—City, 3332 Pan American Dr., Zone 33, $3,600,000 bond election Nov. 8, replacing South Miami Bridge with 5-lane bascule span over Miami River from S. E. 1 St. to Miami Avenue Rd. Construction cost $2,500,000. CD 11/8/44.

▲ **NORTH CAROLINA**—State Hy. & P. Wks. Comn., Raleigh,

Dare and Tyrrell Counties—bridge across Alligator River on U. S. 64 between Sandy Point and East Lake Draw Span, Proj. 1907. $3,000,000. W. H. Rogers, Jr., state hy. engr.

▲ **Tex., Houston**—Comr. Court, Harris Co., Court House, defeated bonds Sept. 17, steel, concrete bridge across Ship Channel and approach roads work. $10,000,000. Frank Baldwin, dir. P. Wks. CD 8/15.

STREETS AND ROADS

▲ **Fla., Miami**—City, 3332 Pan American Dr., Zone 33, bond election Nov. 8, $3,475,000 street imprvs., incl. North Miami Dr., N. E. Court St., N. E. 82 St. and N. W. 35 St. CD 11/30/53.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton,

Bergen Co.—Bergen Expressway from George Washington Bridge to Route 46 at Clifton. $85,000,000.

▲ **Tex., Beaumont**—City, City Hall, defeated bonds Sept. 13, repairing, resurf. existing streets, $1,500,000; new street paving, $4,500,000; freeways, $1,500,000. CD 8/24.

EARTHWORK, WATERWAYS

▲† **Alabama**—U. S. Eng., P.O. Box 1169, 2301 Grant St., Mobile, Zone 7, excavation, earth dam and spillway Lock approach, Warrior Lock & Dam, $5,000,000-$10,000,000. Bids about May, 1956.

▲† **Alabama**—U. S. Eng., P.O. Box 1169, 2301 Grant St., Mobile, Zone 7, four 45,400 h.p. kaplan type turbines, $1,000,000-$5,000,000. Bids about January, 1956; four 32,500 kw generators, $1,000,000-$5,000,000. Bids about February, 1956, both for Fort Gaines Dam. CD 8/17.

▲† **Alabama**—U. S. Eng., P.O. Box 1169, 2301 Grant St., Mobile, Zone 7, dredging, deepening to provide 36 ft. depth, Mobile Harbor. $1,000,000-$5,000,000. Bids about November. CD 8/30/54.

▲ **California**—State Dpt. P. Wks., P. Wks. Bldg., Sacramento, flood control and power dam and appurtenances in Feather River above Oroville to provide water for Southern California and San Joaquin Valley. $1,500,000,000. Bechtel Corp., engrs., 200 Bush St., San Francisco, Calif., will review state engineer's plans. CD 3/14/52, under Calif., Sacramento.

▲ **Florida**—U. S. Eng., P.O. Box 4970, Jacksonville, channel dredging 34 ft. depth, Tampa Harbor. $1,000,000-$5,000,000. Bids about December. CD 11/24/43.

▲† **Georgia-South Carolina**—U. S. Eng., 200 East St. Julian St., Savannah, Ga., excavation and embankment, earth dam, $1,000,000-$5,000,000, Bids about September 1955; highway relocation 2.0 mi. U. S. Hy. 29 $100,000-$1,000,000, and sluice gates and guides $100,000-$1,000,000, Bids about January 1956; bridge on U. S. Hy. 29 $100,000-$1,000,000, Bids about February 1956, above work for Hartwell Reservoir. CD 9/14.

▲† **Michigan**—U. S. Eng., 600 E. Jefferson Ave., Detroit, Zone 26, breakwater dredging, Port Austin Harbor, $1,000,000-$5,000,000. Bids about Feb. 1.

▲† **North Carolina**—U. S. Eng., 308 Custom House, Wilmington, channel imprv., two rubble mound breakwaters, Rollinson Channel, Pamlico Sound, Hatteras, $100,000-$1,000,000, Bids about October 1955; dredging Inside Channel, 34 ft. deep, 27 mi. long, Wilmington Harbor, $1,000,000-$5,000,000, Bids about January 1956.

▲ **Oregon**—Portland General Electric Co., 621 S. W. Alder St., Portland, 2,300 ft. diversion tunnel from Cazadero dam to Faraday power plant, 25,000 kw, generator at Faraday, $5,700,000; concrete-arch dam, Clackamas River at North Clackamas site, 135 ft. head, 620 ft. long, two generators, $13,300,000, both in Clackamas Co. Start early 1956. Ebasco Services, Inc., 2 Rector St., New York, N. Y. consult. engrs. John Bankus, c/o owner, engr.

▲ **Texas**—Canadian Municipal Water Auth., Plainview, bond election Nov. 8, constr. Canadian River dam and facility to provide water service to nine Panhandle, South Plains and West Texas cities to be built near Sanford. $74,800,000. CD 8/11.

▲† **Washington**—Bureau Reclamation, Dpt. Interior, Customhouse, Denver, Colo., irrigation works for land near Chief Joseph Dam, Bridgeport, $4,615,000. Bids for first unit a $631,000 pumping plant after January 1. CD 8/13/52.

AIRPORTS

▲† **Fla., Tampa**—PARKING APRON, etc.—U. S. Eng., P. O. Box 4970, Jacksonville, parking apron and runway $1,000,000-$5,000,000. Bids about September, airmen's dormitories, $1,000,000-$5,000,000, Bids about October, above work at MacDill Air Force Base. CD 8/18.

▲† **Ga., Albany**—PARKING APRON, etc.—U. S. Eng., 200 East St. Julian St., Savannah, parking apron $1,000,000-$5,000,000, Bids About September; airmen's dormitories, $1,000,000-$5,000,000. Bids about October, above work at Turner Air Force Base.

▲† **Ga., Macon**—PARKING APRON, etc.—U. S. Eng., 20 East St. Julian St., Savannah, parking apron $1,000,000-$5,000,000, airmen's dormitories $300,000-$1,000,000, Bids about October; general purpose shop, $300,000-$1,000,000, Bids about September, above work at Robins Air Force Base.

▲† **Ga., Valdosta**—HANGARS, etc.—U. S. Eng., 200 East St. Julian St., Savannah, maintenance hangar $300,000-$1,000,000, Bids about January; airmen's dormitories, $300,000-$1,000,000, Bids about October, above work at Moody Air Force Base.

▲ **O., Akron**—AIRPORT IMPRVS.—Bd. Comrs. Summit and Stark Counties, Court House, imprv. Akron-Canton Airport, incl. terminal bldg., aircraft apron, service court, roads and parking space, utilities, $1,368,000, Landrum & Brown, 111 E. 4 St., Cincinnati, airport consultants. CD 2/24.

▲† **Okla., Clinton** — AIR BASE — Eighth Naval Dist., Building 16, U. S. Naval Station, New Orleans (Algiers) La., Clinton-Sherman Air Force Base, incl. pavement, fuel dispensing facilities, operational, aircraft maintenance, training, storage personnel, administration, community and shop facilities, family housing and utilities for Dpt. of Air Force. $10,208,500.

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Chicago, Ill. Tampa, Fla. Houston, Tex.
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▲ **S. C., Charleston**—AIRPORT—City, William McG. Morrison, mayor, City Hall, airport to replace present airport being taken over by U. S. Air Force. **$1,000,000.**

LATIN AMERICA

▲ **Mexico, Vera Cruz**—Republic Steel Corp., Oliver Bldg., Pittsburgh, Pa., U. S. A. and Associated Mexican Companies, Mexico City, Mexico, plan steel mfg. plant. **$60,000,000.**

AMERICANS ABROAD

▲ **France**—California Spray-Chemical Cie, Francaise, c/o California Spray-Chemical Corp., Lucas and Ortho Way, Richmond, Calif., U. S. A. plans captan plant, **$1,500,000.**

PUBLIC BUILDINGS

▲† **Ariz., Yuma**—SHOPS—U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif., misc. shops and car shelters Yuma Test Station **$1,500,000.** J. H. Pomeroy & Co., Inc., 727 W. 7 St., Los Angeles, Calif., consult. engr. CD 12/11/52.

▲ **Calif., Lafayette**—SCHOOLS—Acalanes Union High School Dist., Lafayette, **$3,250,000,** bond election Nov. 22, school construction.

▲ **Colo., Denver**—SCHOOLS—School District No. 1, 414 14 St., **$40,000,000** bond election in November or December, school expansion, incl. 4 new Senior High Schools, 3 Junior High and 5 Elementary Schools, 18 existing schools addns. and a high school sports stadium. CD 10/10/52.

▲† **Ga., Fort Benning**—THEATRE, etc.—U. S. Eng., [illegible] Julian St., Savannah, theatre, $300,000-**$1,000,000;** classroom bldgs. **$300,000-$1,000,000.** Bids about December; E. M. barracks, over **$5,000,000.** Bids about February; 150-unit family housing, **$1,000,000-$5,000,000.** Bids about November.

▲ **Ill., Aurora**—SCHOOL—School District 129, 152 Glenwood St., plans by Berger & Kelly, 44 Main St., Champaign, West Side Junior High School. **$1,350,000.**

▲ **Ind., South Bend**—HIGH SCHOOL—School City of South Bend, plans by Maurer & Maurer, Lafayette Bldg. Washington High School addns. **$1,250,000.**

▲ **Mich., Detroit**—DETENTION HOME—Bd. Supervs. Wayne Co., City-County Bldg., Juvenile Detention Home, Forest, Rivard, Hancock and Riopelle Sts. **$3,200,000.**

▲ **Mich., Southfield**—SCHOOLS—Bd. Educ. voted **$3,500,000** bonds Sept. 12, Junior and Elementary Schools. CD 8/11.

▲† **N. C., Camp Lejeune**—FACILITIES, etc.—P. Wks. Office, Marine Corps Base, personnel and security facilities, utilities. **$1,059,000.**

▲ **O., Cincinnati**—SCHOOL—Bd. Educ., 608 E. McMillan St., 2 story, basmnt., Washington Park Elementary School, 12 and Elm Sts. **$1,250,000,** A. M. Kinney, Inc., Vernon Place, Cincinnati, consult. engrs. CD 11/5.

▲ **O., Massillon**—SCHOOL—Perrysburg Twp. Bd. Educ., **$1,140,000** bond election Dec. 13, high school addn., school. CD 11/18.

▲† **O., Sandusky** — LABORATORY — National Advisory Committee for Aeronautics, 1512 H St. N.W., Wash., D. C., nuclear propulsion laboratory as branch of Lewis Flight Propulsion Laboratory of Cleveland, built on site of old Plum Brook Ordnance Reservation 3 mi. south of here. **$5,000,000.**

▲ **Ore., Eugene**—HIGH SCHOOL—Eugene School Dist., Eugene bond election Oct. 20, high school. **$2,750,000.**

▲ **S. D., Rapid City**—SCHOOLS—Rapid City School Bd., 6 and Columbus Sts., **$3,000,000** bond election Nov. 15, two Junior High Schools, three elementary schools, remodeling Washington High School.

▲ **Tex., Arlington** — SCHOOL — Arlington Independent School Dist., c/o James W. Martin, supt., Arlington, voted bonds Sept. 17, school imprvs. **$3,000,000.** Preston M. Geren, 1607 Fort Worth Natl. Bldg., Fort Worth, archt. CD 9/8.

▲ **Tex., Austin**—STATE HEALTH OFFICE—State of Texas, c/o Dr. Henry Holle, State Health Dpt., Austin, plans by Page, Southerland & Page, 602 West Ave., State Health Dpt. Office Bldg., three 3 story wings and three 1 story wings, approx. 215,000 sq. ft. **$3,750,000.**

▲ **Tex., Austin** — TRAINING — Bd. for Texas State Hospitals & Special Schools, Austin, plans by Page, Southerland & Page, 602 West Ave., 1 story 320x417 ft. receiving and intensive training bldg., at Austin State Hospital. **$1,500,000.** Wilson & Cottingham, Brown Bldg., structural engrs. Walter C. Moore, c/o owner, engr. CD 10/2/52.

▲ **Tex., Pasadena**—AUDITORIUM—City, voted bonds Sept. 3, auditorium. **$1,250,000.** CD 7/20.

▲ **Wash., Seattle**—ADMINISTRATIVE CENTER—City, County-City Bldg., Zone 4, 110,000 sq. ft. North End Administrative Center. **$1,750,000.**

▲ **Wash., Seattle**—DORMITORY—University of Washington, Seattle, Zone 4, plans by Young, Richardson, Carleton & Detlie, Central Bldg., Zone 4, men's dormitory addns. **$2,600,000.** Bids after January 1. CD 9/20/49.

▲ **Wash., Steilacoom**—SCHOOL—Clover Park School Dist. No. 400, Steilacoom, plans by C. Rueger & Assocs., 225 S. Tacoma St., Tacoma, Junior High School. **$1,088,000.** Bids early next year. CD 11/10.

COMMERCIAL BUILDINGS

▲ **N. Y., Nanuet** — SHOPPING CENTER, etc. — New York Interiors, Inc., c/o A. H. Salkowitz, archt., 87-25 Homelawn St., Jamaica, Zone 32, shopping center; plans by John J. McNamara, 132 W. 43 St., New York, Zone 36, drive-in-theater on 50 acre tract on Rte. 59, **$2,000,000.**

▲ **N. Y., New York**—APARTMENT—F.B.F. Constr. Co., 1472 Broadway, plans by Sylvan Bien, 33 W. 46 St., Zone 19, apartment, 120-24 University Place, **$1,500,000.**

▲ **N. Y., New York**—HOSPITAL—New York Foundling Hospital, 175 E. 68 St., plans by Eggers & Higgins, 100 E. 42 St., Zone 17, 11 story foundling hospital, 1175-1185 Third Ave. between 68 and 69 Sts., **$4,000,000.** CD 9/23/54.

▲ **N. Y., Ossining**—HOME—Bethel Methodist Home for Aged, Narraganset Ave., plans by Ferrenz & Taylor, 152 W. 42 St., New York, Zone 36, 3 story home for aged, **$1,000,000.**

▲ **N. Y., Potsdam**—DORMITORY—Thomas S. Clarkson Memorial College of Technology, Potsdam, dormitory, **$1,000,000.**

▲ **O., Toledo**—HOMES—Howard A. Schneider, Inc., 1040 Laskey Rd., plans by James A. Risser, 6122 Sylvan Green, Sylvania, 45 homes in suburban Ottawa Hills area, section to be known as Bonniebrook in the Hills, **$2,000,000.**

▲ **Tex., Austin**—OFFICE—E. G. Kingsberry & Assocs., c/o Austin Statesman, 308 Guadalupe St., 21 story office. **$2,000,000.**

▲ **Tex., Houston**—SHOPPING CENTER—First Mortgage Co., c/o Thompson-McCleary, Werlin & Kiefner, archts., 2017 W. Gray St., frame, stone, brick shopping center, rein.-con. fdns., in Meyerland Subdivision, Post Oak Rd. at Bechnut St. **$3,500,000.** R. L. Reid, 2506 Richton St. and James H. Howard, 4101 San Jacinto St., consult. engrs.

▲ **Wash., Seattle**—SHOPPING CENTER—Eastgate Investment Co., c/o Bordon Campbell, 6401 Carleton St., shopping center, Sunset Hy. east of here **$10,000,000.**

▲ **Wash., Seattle**—HOMES—Guthrie Constr. Co., 10703 Renton Ave., 2,000 home project, Evergreen Hills addn., south of here, **$30,000,000.** Six-year program.

▲ **Ont., Sarnia**—HOUSING—Woodhaven Park Development, Colborne Rd., 125-unit housing development, Colborne Road and Michigan Ave. **$1,300,000.**

▲ **Ont., Toronto**—HOTEL—J. D. Crashley, Elgin Motors Ltd. 123 Front St. W., plans by John B. Parkin & Assocs., 717 Church St., 24 story 1,050 room HOTEL, 2 level underground parking, York and Front Sts., southwest corner, **$20,000,000.**

▲ **Que., Montreal**—HOUSING—Columbia Construction Inc., Dominion Square Bldg., 135 bungalows in housing development at Ste. Genevieve **$1,400,000.**

▲ **Que., Montreal**—OFFICE, etc.—Isadore Feldman, 1396 Notre Dame St. W., 20 story, 12,000 sq. ft. office bldg. and parking garage. **$4,000,000.** T. P. Keith & Assocs., 4935 Clanranald Ave., engrs. CD 9/16.

▲ **Que., Montreal** — HOUSING — Manoir Development Corp., c/o Harry Stilman, archt., 2183 Maplewood Ave., will not construct housing development in St. Vincent De Paul suburban area. **$1,500,000.** Project abandoned. CD 4/27.

INDUSTRIAL BUILDINGS

▲ **Calif., Antioch** — PLANT — Crown-Zellerbach Corp., 343 Sansome St., San Francisco, 170,000 sq. ft. bag plant, **$2,000,000.**

▲ **Ga., Savannah**—PLANT—Southern Nitrogen Co., Savannah, petrochemical plant, **$14,000,000.**

▲ **Miss., Columbus**—PLANT—American Bosch Arma Mississippi Corp., Columbus, electric equipment plant, **$1,164,400.**

▲ **O., Canton**—PLANT—Macomber, Inc., 1925 10 St., N.E., 260,000 sq. ft. plant to mfg. steel frames on 50 acre site between Canton and Louisville. **$1,500,000.**

▲ **O., Dayton**—PLANT—General Motors Corp., Moraine Products Div., 1420 Wisconsin Ave., 230,000 sq. ft. auto parts plant addn. **$2,000,000,** total est. with equip. $11,000,000.

▲ **O., Eaton**—FACTORY—Hinde & Dauch Paper Co., Chas. E. Frohman, pres., 407 Decatur St., Sandusky, corrugated box factory, **$2,500,000.**

▲ **Texas** — COMPRESSOR STATION — Texas Eastern Transmission Corp., Texas Eastern Blvd., Shreveport, La., compressor station with auxiliary bldgs. on 95-acre tract, Vidor. **$1,500,000.**

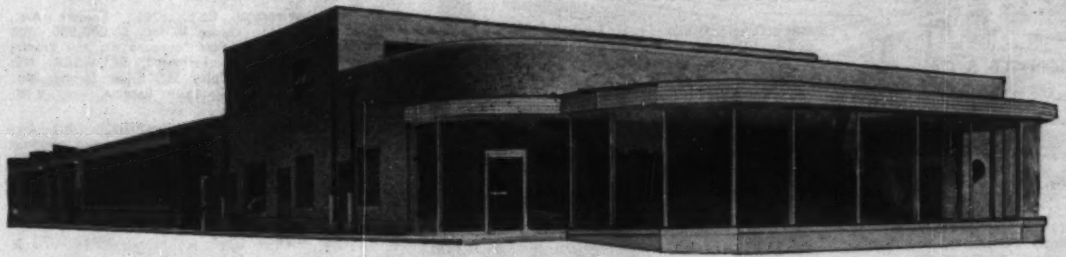
▲ **Tex., Borger**—PLANT—Phillips Petroleum Co., Bartlesville, Okla., plant expans. (co-polymer unit). **$2,000,000.** CD 11/15/51.

▲ **Tex., Port Neches**—PLANT, etc.—Goodrich-Gulf Chemicals, Inc., and Texas U. S. Chemicals, Port Neches, butadiene plant expansion. **$1,500,000;** synthetic rubber plant expansion. **$1,500,000.**

UNCLASSIFIED

▲ **Fla., Miami**—TUNNEL—City, 3332 Pan American Dr., Zone 33, $12,700,000 bond election Nov. 8, six lane tunnel to carry N. W. 1 St. and Flagler St. under Miami River. Construction cost **$9,800,000.** Will replace West Flagler St. Bridge.

▲ **Tex., Houston**—WHARVES—Port Commission Navigation Dist., Wharf No. 3, defeated bonds Sept. 17, Job. 1, uncovered wharf, **$2,000,000;** Job 6, covered wharf with transit shed, **$2,200,000;** Job. 7, covered wharf with transit shed, **$2,200,000;** truck loading facilities, **$300,000;** marine leg unloading facilities, **$500,000;** soil dumping and filling area, **$1,000,000.** Lockwood & Andrews, Union Natl. Bank Bldg., and Robert J. Cummins, Bankers Mortgage Bldg., consult. engrs. CD 8/15.



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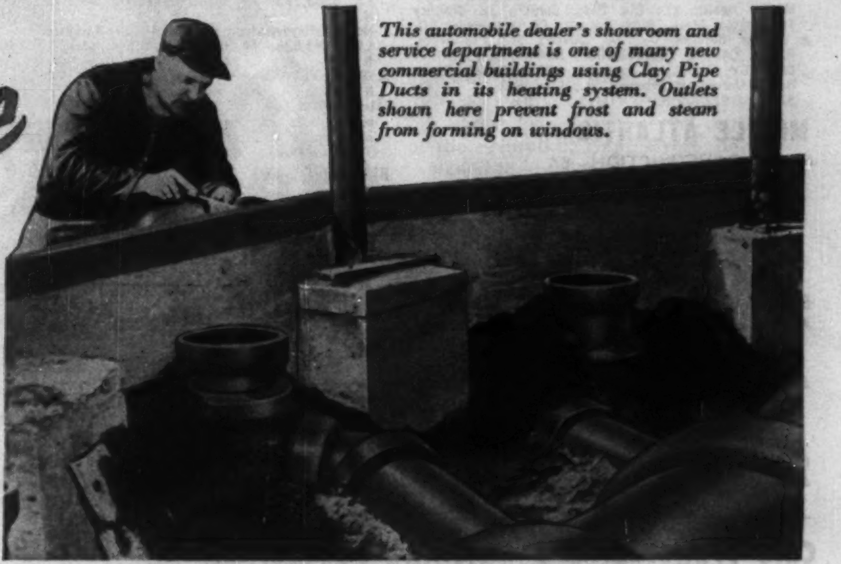

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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

HEAVY CONSTRUCTION—LB & CA

▲ **S. Volpe & Co., Inc.**, 185 Devonshire St., Boston, Mass. LB **$1,463,000**. W-702 Contr. 1, Commonwealth Pier No. 5, South Boston, BOSTON, MASS. Commonwealth of Mass., Port of Boston Comn., c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Sept. 22. CD 9/8.

▲ **CONNECTICUT**—State Hy. Comn., State Office Bldg., Hartford,

D. V. Frione, 87 Foxan St., New Haven, Conn., LB, **$1,589,963**, Section 317, Contr. 01-Proj. 317-04, hy. work, Greenwich-Killingly Expressway, New Haven. Bids Sept. 19. CD 9/8.

BUILDINGS—LB & CA

▲ **Park Constr. Co., Inc.**, 40 Court St., Boston, Mass., CA, **$1,660,805**. M-615, ADMISSION BLDG., Metropolitan State Hospital, WALTHAM, MASS. State Dpt. Mental Health, c/o Div. Bldg. Constr., 38 Chauncy St., Boston, Mass. Bids Sept. 2. CD 9/7, under LB.

▲ **Gilbane Building Co.**, 90 Calverly St., Providence, R. I. CA Est. **$3,000,000**. DORMITORIES, PSYCHOLOGY BLDG. on campus, PROVIDENCE, R. I. Brown University, Prospect St., Providence, R. I. CD 5/5 and 9/28.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 11 Maryland October 13, 18 New Jersey
October 27 New York

STREETS AND ROADS

October 11 Delaware October 13 New Jersey
October 27 New York

BUILDINGS—BA

▲ **N. Y., Scarsdale**—HIGH SCHOOL—BA 10/18—Bd. Educ., Brewster Rd., Junior High School, $3,000,000. Starrett & Van Vleck and Reginald Marsh, 267 Fifth Ave., New York, Zone 16, archts. CD 11/4.

▲ **Pa., Brockway**—SCHOOL—BA 10/20—Brockway Joint School Dist., High School, Brockway, 2 story, brick Junior and Senior High School, $1,500,000. Hunter, Caldwell & Campbell, 3601 Fifth Ave., Altoona, archts. CD 7/8/54.

BUILDINGS—SLC

▲ **N. J., Lawrenceville**—SCHOOL—Roman Catholic Diocese of Trenton, 153 N. Warren St., soon lets contract regional high school, Lawrence Twp. $2,500,000. William W. Slack & Son, 140 W. State St., Trenton, archts. CD 9/6.

HEAVY CONSTRUCTION—BA

▲ **NEW YORK**—Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany,

H. L. Baughman, Inc., 1240 Jefferson Rd., Rochester, N. Y. LB **$1,125,349**. twin bridges and approaches Carry divided lanes Erie Section Thruway over 6 tracks N.Y.C., Pennsylvania and Nickel Plate R.R. near Swede Rd., town of Portland, Chautauqua Co. Bids Sept. 22. CD 8/29, under Streets and Roads.

▲ **M. A. Bongioanni**, 309 Sunset Ave., Syracuse, N. Y. LB **$1,319,420**. (7 bidders) general contract heating tunnels and service connections Craig Colony, SONYEA, N. Y. Bureau Contracts & Accounts, The Gov. Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Sept. 22, CD 9/1;

Joseph Davis, Inc., 120 W. Tupper St., Buffalo, N. Y. LB **$563,773**. (9 bidders) heating work. (Sonyea, N. Y.);

Horacek-Hayden, Inc., PO Drawer 709, Rochester, N. Y. LB **$693,826**. (4 bidders) electric work. (Sonyea, N. Y.)

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. Fourth St., Harrisburg,

Latrobe Road Constr. Co., Latrobe, Pa. CA **$3,678,391**. constr. 4.53 mi. (Sec. 37 L), northeastern extension of Turnpike in city of Scranton and South Abington Twp., Lackawanna Co. CD 9/6, under LB.

BUILDINGS—LB & CA

▲ **Allied Homes**, c/o A. H. Salkowitz, archt., 87-25 Homelawn St., Jamacia, N. Y. Owner Builds. **$5,000,000**. 300 HOUSES on tract bounded by 76 St., 79 St., 30 Ave., and 31 Ave., JACKSON HEIGHTS, N. Y.

▲ **Vermilyea-Brown Co., Inc.**, 100 E. 42 St., New York 17, N. Y. CA Est. **$1,300,000**. 6 story NURSING HOME, 64-71 Jackson, St., NEW YORK, N. Y. Dominican Sisters, c/o Eggers & Higgins, archts., 100 E. 42 St., New York 17, N. Y. CD 10/27/54.

▲ **Monterey Village Homes**, c/o Klein & Parker Realty Co., 1391 Northern Blvd., Roslyn, N. Y. Owner Builds, **$2,400,000**. 200 HOUSES on tract on Montauk Highway east of Lakeland Ave., SAYVILLE, N. Y.

▲ **Sea Wood Harbor Homes**, c/o George H. Beckmann, Inc., State Highway 4, Teaneck, N. J. Owner Builds, **$4,800 000**. 400 HOUSES on 100-acre tract in Brick Twp., near POINT PLEASANT, N. J.

▲ **Catalytic Constr. Co.**, 1528 Walnut St., Phila., Pa. CA est. **$4,00,000**. design and construct 40,000 ton per year butadiene PLANT, POTTSTOWN, PA. Firestone Tire & Rubber Co., Pottstown, Pa. CD 8/6/51.

▲ **Housing Development Corp.**, 7961 Eastern Ave., Silver Spring, Md., Owner Builds, **$6,000,000**. 225 HOMES, 25-acre tract near Fernwood Rd. and Bradley Blvd., to be known as Fernwood, BETHESDA, MD. J. 'd'Etagnier, 1004 Ripley St., Silver Spring, Md., and William J. Fedeli, 1809 Georgia Ave. N.W., Wash, D. C., archts.

▲ **United Engineers & Constructors, Inc.**, 1401 Arch St., Phila., Pa., CA **$30,000,000** design and construct electric power GENERATING PLANT, MILLSBORO, DEL. Delaware Power & Light Co., 600 Market St., Wilmington, Del

SOUTH

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 12 Louisiana October 14 Kentucky

STREETS AND ROADS

October 12 Louisiana October 14 Kentucky

▲† **La., New Orleans**—RUNWAY—BA 10/26—Officer in Charge of Constr., Eighth Naval Dist., Bldg. 16, U. S. Naval Station, New Orleans (Algiers), runway 13-31, taxiways and aprons, etc., Joint Air Reserve Training Center, Alvin Callender Field, NOY 86352. Spec. 43912. Plans deposit $40. CD 11/17/53.

▲ **Virginia**—TUNNEL—BA 11/16—Commonwealth of Va., Dpt. Hys., Central Highway Office Bldg., 1221 E. Broad St., Richmond, Zone 19, Hampton Roads Proj., Contr. No. C-3 for constr. cut and cover tunnel sects., ventilation bldgs. and tunnel open approaches; crash truck bldgs., incl. foundations, mechanical and electrical work complete; misc. work, incl. railings on tunnel and bridge approaches, hand rail in tunnel, police booths and sidewalks, curbs and walls, and rough grading on Portla Islands. Plans deposit $82.50. Parsons, Brinckerhoff, Hall & Macdonald, 51 Broadway, New York 6, N. Y., engrs.; adv. ENR 10/6. CD 6/3/53.

HEAVY CONSTRUCTION—LB & CA

▲ **GEORGIA**—State Hy. Dpt., 2 Capitol Sq., Atlanta,

Ga.—**Foster & Creighton**, American National Bank Bldg., Nashville, Tenn., CA, **$1,260,482**. grading, paving, wid'n., reconstr. 4.932 mi. State Rtes. 85 and 1, FAP U 011-1 (5) and 174-1 (1) and F 074-1 (5), Muscogee Co.;

Ga.—**Suber & Co., Inc.**, Whitmire, SC., CA, **$1,189,755** grading, paving, 5.235 mi. State Rte. 13, FAP FI-013-1 (4), Gwinnett Co.;

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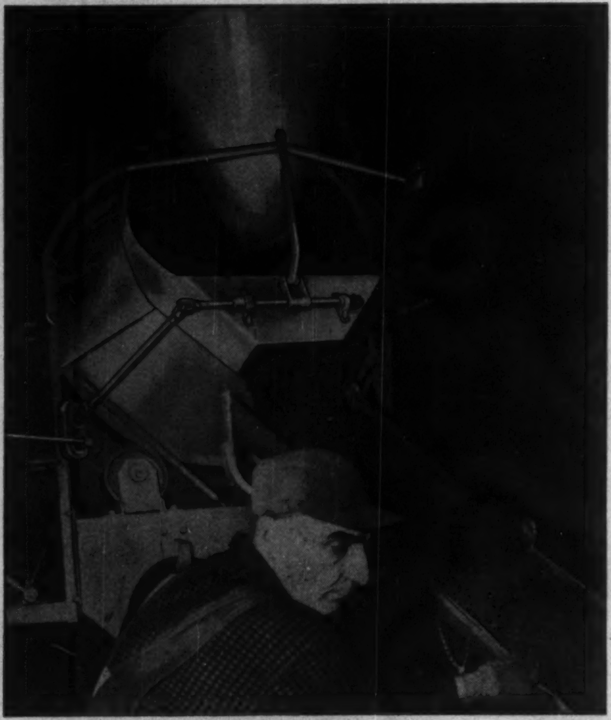

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Ga.—**E. F. Groover**, Box 568, Moultrie, Ga., CA, **$691,241.** grading, paving, wid'n., resurf., new constr. 11.262 mi. Moultrie-Sylvester Rd. 33 and Moultrie-Tifton Rd., State Rte. 35 reconstr. 1.034 mi. Tifton Rd. FAP F 033-1 (3), F 033-1 (4) and F 098 (1), Colquitt Co.;

Ga.—**Wright Contg. Co.**, Box 1537, Columbus, Ga., CA, **$521,710.** wid'n., reconstr., resurf. 12.362 mi. and widen bridge over Flint River, State Rte. 85, FAP F 074 (2) (4), Fayette and Clayton Counties. Grand total $3,663,188. Bids Aug. 19. CD 8/25, under LB.

▲ **LOUISIANA**—The Mississippi River Bridge Auth., 422 City Hall Annex, New Orleans,

Bethlehem Steel Co., E. 3 St., Bethlehem, Pa., CA, **$12,268,580.** superstructure Mississippi River Bridge crossing the greater New Orleans Bridge over the Mississippi River. Bids Sept. 27. CD 9/29, under LB.

▲ **LOUISIANA**—State Hy. Dpt., Highway Office Bldg., Baton Rouge,

La.—**T. L. James & Co., Inc.**, Ruston, La. LB **$1,021,554.** (5 bidders) wid'n. c. conc. 16.159 mi. Bonnet Carre Spillway-Shrewsbury Hy., La. U. S. Rte. 61, S.P. 7-03-20 and 7-02-29, St. Charles and Jefferson Parishes;

La.—**Jahncke Service, Inc. & McWilliams Dredging Co.**, 814 Howard Ave., New Orleans, La. LB **$2,853,895.** (2 bidders) hydraulic embankment 13.754 mi. Manchac-Frenier Hy., State Rte. 33, S.P. 17-02-24 and 17-01-11, Tangipahoa and St. John the Baptist Parishes;

La.—**Bedsole & Shetley**, Box 192, Mansfield, La. LB **$139,472.** (4 bidders) bit. surf. tr. 6.2 mi. Ashland-Saline Hy., State Rte. 155, S.P. 307-01-03, Bienville Parish;

La.—**Continental Constructors, Inc.**, Box 407, Baton Rouge, La. LB **$223,803.** (4 bidders) bit. surf. tr. 8.499 mi. Kilbourne-Concord Hy., State Rte. 207, S.P. 332-03-06, West Carroll Parish;

La.—**W. R. Core**, Covington, La. LB **$272,760.** (3 bidders) bit. surf. tr. 6.229 mi. Tangipahoa Parish Line-Ramsey Hy., State Rte. 1723, S.P. 852-06-06, St. Tammany Parish;

La.—**R. T. Henry**, Dubach, La. LB **$190,688.** (5 bidders) bit. surf. tr. 5.885 mi. Mt. Union-Lockhart Hy.; State Rte. 440, S.P. 154-30-03, Union Parish;

La.—**T. W. Kleinpeter**, Box 4686, Audubon Station, Baton Rouge, La. LB **$223,967** (4 bidders) bit. surf. tr. 7.786 mi. Jarreau-Glynn Hy., State Rte. 414, 415, 416 and 983, S.P. 839-13-02, 224-02-09 and 224-01-04, Pointe Coupee Parish;

La.—**J. G. Madden**, Box 1048, Minden, La. LB **$132,498.** (3 bidders) bit. surf. tr. 5.2 mi. Cotton Valley-Leton Hy., State Rte. 182, S.P. 85-05-09, Webster Parish;

La.—**W. H. Patterson & Co.**, Box 2229, Baton Rouge, La. LB **$174,416.** (6 bidders) bit. surf. tr. 7.66 mi. Hubert-Richland Parish Line Hy., State Rte. 208, S.P. 71-01-04, Caldwell Parish; LB **$204,453** (5 bidders) bit. surf. tr. 9.794 mi. Baskin-Delhi Hy., State Rte. 240, S.P. 168-01-07, Franklin Parish;

La.—**G. E. Steed, Contractor**, Box 535, Springhill, La. LB **$97,473.** (6 bidders) bit. surf. tr. 7.699 mi. Verda-Atlanta Hy., State Rte. 5, S.P. 123-02-03 and 123-03-03, Grant and Winn Parishes;

La.—**Walden & Williams**, Box 738, Mansfield, La. LB **$96,354.** (3 bidders) bit. surf. tr. 5.25 mi. Mansfield-Clear Lake Hy., State Rte. 509, S.P. 105-01-03 and 105-02-03, DeSoto Parish. Bids Sept. 21. CD 8/31 and 9/9.

MIDDLE WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

November 22 Ohio

▲† **Ohio and West Virginia**—BA 10/30—U. S. Eng., 925 Federal Bldg., Pittsburgh 19, Pa., 110x1,200 ft., main lock and 110x600 ft. auxiliary lock with 2 parallel lock chambers on Ohio side, New Cumberland Locks and Dam, Ohio River. $7,000,000. CD 8/18.

BUILDINGS—BA

▲ **Mich., Detroit** — SCHOOL — BA 10/19 — City, Bd. Educ., 1354 Broadway, Amelia Earhart High School, 7 Mile Rd. between Hoover and Bradford Sts. $5,000,000. Smith-Hinchman & Grylls, Inc., 800 Marquette Bldg., archt. CD 2/9.

▲ **Ill., Chicago**—OFFICE—BA 10/24—Inland Steel Co., 38 S. Dearborn St., 17 story office, Monroe and Dearborn Sts. $6,000,000. Skidmore, Owings & Merrill, 100 W. Monroe St., Zone 3, archts. CD 10/5/54.

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus, Zone 15,

O.—**Baker & Hickey Co.**, P. O. Box 5008, Tri-Village Station, Columbus, O. CA **$2,278,854.** est. $2,498,000. Type T-71 and structure 1.914 mi. S. R. 120, Section 2.05 (Part No. 7-Toledo Expressway System), UI-1052 (6) Oregon Twp. and city of Toledo, Lucas Co. CD 9/21, under LB;

O.—**Ohio Engineering Co.**, 105 Sixth St., Lorain, O. CA **$501,737.** est. $518,900. Type T-35 2.556 mi. S. R. 254 sections (2.40-3.38) S 951 (4), U-1094 (1), Black River, Sheffield, Amherst and Elyria Twps., Lorain Co.;

O.—**Harper Supply, Inc.**, 118 W. Front St., Napoleon, O. CA **$784,447**, est. $779,800. Type T-35 on B-20 and structure 4.1 mi. U. S. R. 224, section 10.66, Hopewell, Clinton and Eden Twps., Seneca Co.;

O.—**V. N. Holderman & Sons, Inc.**, 890 Oakland Park Ave., Columbus, O. CA **$966,611**, est. $1,155,000. Type T-71 and structures 5.835 mi. U. S. R. 23, Sections (1.43-3.74), Pickaway and Circleville Twps., Pickaway Co.;

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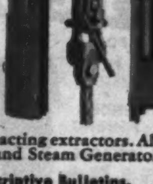

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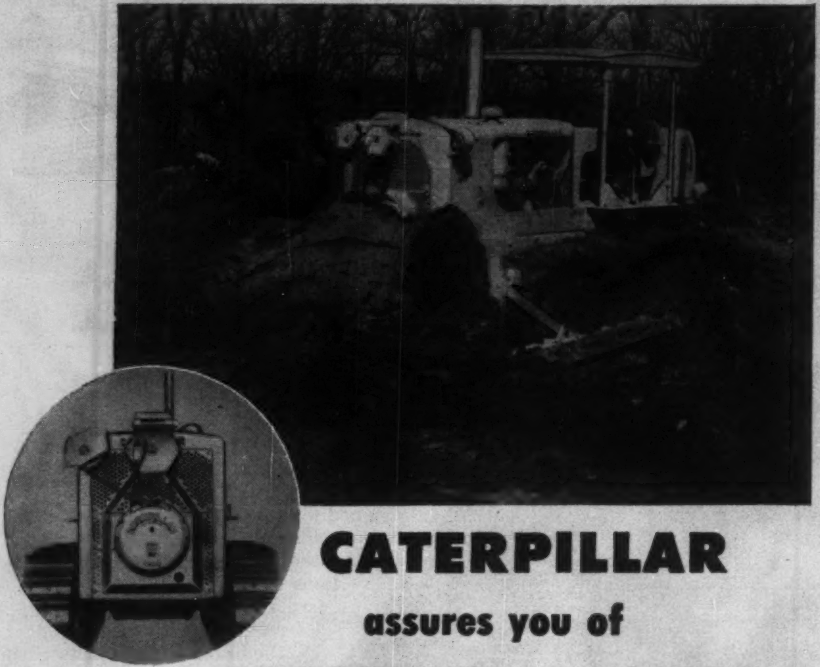

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O.—L. R. Skelton, 38 Powhatan Ave., Columbus, O. CA **$1,115,468.**, est. $1,178,000. Type T-35 on B-119 and structure 7.742 mi. U. S. R. 22, sections 0.00, 6.83, Reading, Hopewell and Madison Twps., and Newton Twp., Muskingum and Perry Counties;

O.—**Chapin & Chapin, Inc.**, Rte. 20, East, Norwalk, O. CA **$518,346.**, est. $544,400. Type T-35 and structures 4.66 mi., S. R. 18, Sections (2.44-4.70) Litchfield and York Twps., Medina Co. Grand total $6,165,462. CD 9/22, under LB.

▲ **Michigan Consolidated Gas Co.**, 415 Clifford St., Detroit 26, Mich. Owner Builds. **$22,100,000.** underground gas storage reservoir natural gas, Six Lakes Field, Mount Pleasant, MICHIGAN.

BUILDINGS—LB & CA

▲ **E. F. Ireland & Co.**, Traction Bldg., Cincinnati, O. Owner Builds. **$1,650,000.** 96 prefab., 24x38 ft. bsmnt., bsmntless HOMES, off Mantel and Wicklow Aves., CINCINNATI,O. Nunlist & Frolicher, Traction Bldg., Cincinnati, O., engrs. Thyer Mfg. Co., 2857 Wayne St., Toledo, O., archts. Awarded Sept. 27.

▲ **Sam W. Emerson Co.**, 1836 Euclid Ave., Cleveland, 15, O., CA, Est. **$1,750,000.** general contract 96,000 sq. ft. PLANT, 17-acre site on W. 56 St. south of Denison Ave. Plant, CLEVELAND, O. Dobeckmun Co., 3301 Monroe St., Cleveland, O. CD 7/14. Awarded Sept. 12.

▲ **Anton Kresse**, 4732 Anderson Rd., Cleveland 24, O. Own Forces. **$1,750,000.** 80 HOMES, Professor Rd. located on boundary of South Euclid and Lyndhurst, LYNDHURST, O.

▲ **Modern Home Building Co.**, Barney Schwarzer, pres., 4373 Clague Rd. N., Olmsted, O. Owner Builds. **$1,400,000.** 70 HOMES, W. 226, 227, 228, 229 Sts. off Maple Dr., PARKVIEW, O. CD 9/12.

▲ **Scheik-Johnson Constr. Co.**, 12440 S. Michigan St., Chicago, Ill., Own Forces, **$2,900,000.** 200 HOMES, HARVEY, ILL. Nordlie & Co., 11100 S. Michigan St., Chicago, Ill., archts.

▲ **Worsham-Midwest Corp.**, 3557 Peterson Rd., Chicago, Ill., CA, **$4,000,000,** FACTORY addns., incl. several buildings, railroad trackage, concrete paving, etc., KANKAKEE, ILL. A. O. Smith Corp., 3533 North 27 St., Milwaukee, Wis. Quinn & Christiansen, 134 N. La Salle St., Chicago 2, Ill., archts. Awarded Sept. 21. CD 9/20, under CA.

▲ **Baskin & Marcus**, 15951 Tuller St., Detroit 38, Mich. CA Est. **$1,250,000.** Fairfield Lanes Development, brick HOMES, Pardee and Haskell Sts., DEARBORN, MICH. Sun Ranch Homes, Inc., Ecorse, Mich.

▲ **W. E. Wood Co., 4649 Humboldt St., Detroit, Mich.**, CA, **$4,000,000.** SCIENCE and RESEARCH BLDG., Ford Engineering Center, DEARBORN, MICH. Ford Motor Co., 3000 Schaefer St., Dearborn, Mich. Voorhees, Walker, Foley & Smith, 101 Park Ave., New York, N. Y., archts. CD 8/13/54.

▲ **Schurrer Constr., Inc.**, Pontiac, Mich., CA, **$1,250,000.** HIGH SCHOOL, ROCHESTER, MICH. City School Dist., Rochester, Mich. CD 9/16, under LB.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

BRIDGES

October 13 Kansas October 18, 19 Texas

STREETS AND ROADS

October 13 Kansas October 18, 19 Texas

▲† **Tex., Texarkana**—AMMUNITION FACILITIES—BA 10/19—U. S. Eng., Box 61, Tulsa 2, Okla., ammunition renovation facilities, Red River Arsenal, Inv. ENG-34-066-56-18. $1,250,000. CD 7/6/51.

▲† **South Dakota**—BA 11/3—U. S. Eng., 1709 Jackson St., Omaha, Neb., constr. spillway earthwork, approx. 7,650,000 cu. yd. excav. and wasting, Stage I, Oahe Reservoir Proj. near Pierre, CIVENG-25-066-56-41. Total appropriation $25,000,000. CD 9/28.

BUILDINGS—BA

▲ **Tex., Fort Worth** — PLANT — Bids Asked — Menasco Mfg. Co., 805 S. San Fernando Blvd., Burbank, Calif., aircraft mfg. plant, $4,000,000; water sys., $65,000; plant site area earthwork, grading, open drainage, $75,000, at Euless, near here. CD 8/12.

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., 1246 University Ave., St. Paul,

L. G. Arnold, Inc., Box 228, Eau Claire, Wis. LB **$1,298,000.** (10 bidders) constr. Bridge No. 6748 over Mississippi River in St. Cloud, Bids Sept. 23.

▲† **Mobray & Son**, Minot, N. D., LB **$1,343,950**, central heating plant, high temperature hot water distr. Inv. 25-066-56-3, Minot Air Force Base, MINOT, N. D. U. S. Eng., 1709 Jackson St., Omaha, Neb. Former low bid rejected, LB **$1,342,630.** CD 9/28, under LB.

▲ **Continental Oil Co.**, Ponca City, Okla. LB **$1,168,874**, est. $1,250,000, concession stand over turnpike at Vinita, Craig Co.; LB **$321,960**, est. $300,000. concession stand, restaurant and filling station on turnpike at Miami, Ottawa Co.; LB **$322,172**, est. $350,000, concession station, filling station and restaurant on turnpike at Claremore, Rogers Co., OKLAHOMA. Oklahoma Turnpike Auth., 321 N.E. 24 St., Oklahoma City, Okla. Bids Sept. 20. CD 8/30.

▲ **TEXAS**—State Hy. Comn., Austin,

Whittle Constr. Co., P. O. Box 5602, Dallas, Tex., CA **$1,269,268**, 1.373 mi. Pecos River Bridge and ap-

(Continued on page 94)

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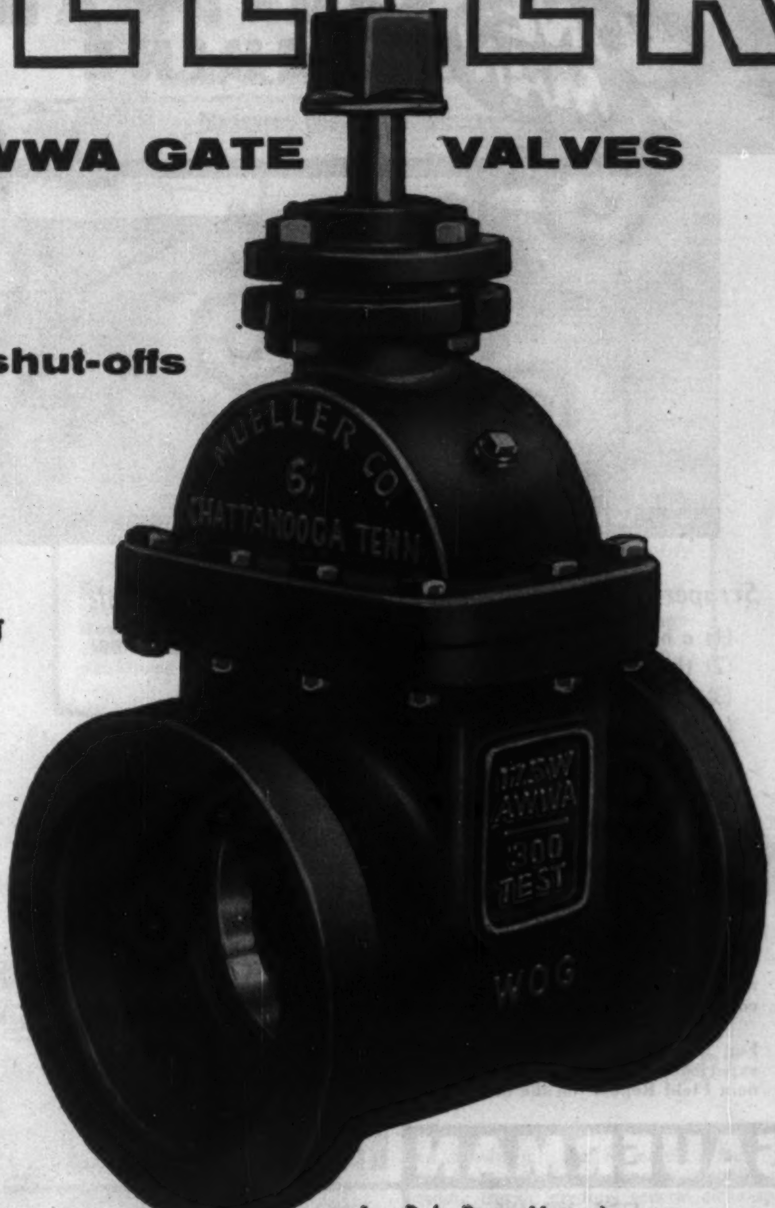

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(4) a method of shifting.

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(Continued from page 92)

proach, Hy. US 90, Proj. ER-14 (1), Val Verde Co. Bids Sept. 14, awarded Sept. 19. CD 9/20, under LB.

▲ **TEXAS**—State Hy. Comn., Austin,
Tex.—**W. R. Aldrich & Co.**, P. O. Box 1751, Baton Rouge, La., CA **$1,233,821**, grading, structures 6.946 mi. Hy. ST. 73, Proj. IN 1052 (28), Chambers Co.;
Tex.—**Collins Constr. Co. of Texas**, P. O. Box 1192, Austin, Tex., CA **$711,403**, flexible base, b. conc. 7.897 mi. Hy. US 80, Proj. F 19 (14), etc., Eastland Co.;
Tex.—**Ivan Dement**, P. O. Box 1787, Amarillo, Tex., CA **$810,112**, flexible base, hot mix b. conc. 17.947 mi. Hy. US 83, Proj. F 581 (11), Jones Co.;
Tex.—**John G. Holland**, P. O. Box 14097, Houston, Tex. CA **$688,130**, deepwater-port storm sewerage sys. Hy. ST 73, Proj. UI 1052 (27), Harris Co. Grand total $3,443,466. Bids Sept. 14, awarded Sept. 19. CD 9/20, under LB.

▲ **TEXAS**—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,
Spencer Constr. Co., Carrollton, Tex., CA **$1,680,062**, grading, drainage 10.22 mi. from 0.5 mi. west of Ederville Rd. to 0.3 mi. west of Duncan-Perry Rd. Contr. D-FW23, Tarrant Co. Bids Sept. 14. CD 9/16, under LB.

▲ **TEXAS**—Texas Turnpike Auth., 214 First Federal Savings Bldg., Austin, Zone 1,
Austin Road & Bridge Co., 1000 Singleton Blvd., Dallas, Tex., CA **$1,856,822**, Trinity River Bridge, Beckley Ave. grade separation and approach grading, Proj. D-FW24, Dallas Co. Bids Sept. 13. CD 9/20, under LB.

BUILDINGS—LB & CA

▲ **Thomas Constr. Co.**, Schneider Bldg., St. Joseph, Mo., LB, **$1,380,495** general contract, LINDEN HALL, Iowa State College, AMES, IOWA. State Bd. Educ., State Office Bldg., Des Moines, Iowa. Bids Sept. 2. CD 8/17.

▲ **Sherbrook Constr. Co.**, 6149 Louisiana Ave., St. Louis 11, Mo. Owner Builds, **$1,285,056**. ninety-seven 1 story, brick RESIDENCES, Rutherford Dr., Meredith, Union, Fabian and Ripa Aves., AFFTON (ST. LOUIS 23 P.O.), MO.

▲ **A. Borchman & Sons**, 4601 Douglas St., Omaha, Neb., CA, **$1,281,887**, general contract MEDICAL OFFICE, 44, and Farnam Sts., OMAHA, NEB., World Publishing Co., 14 and Dodge Sts., Omaha, Neb. Bids Aug. 2. CD 8/24, under LB;
Wray M. Scott Co., 2811 Dodge St., Omaha, Neb., CA, **$631,370**. mechanical work (Omaha, Neb.).

▲ **Farnsworth & Chambers Co., Inc.**, Box 74, Houston, Tex. CA **$7,500,000**, POLYETHYLENE PLANT; CA **$48,000**, water sys.; CA **$85,000**, sanitary-storm sewers; CA **$50,000**, grading, open drainage, grounds development; CA **$75,000**, pipe line work in area on Houston Ship Channel, HOUSTON, TEX. Grand total $7,758,000. Phillips Chemical Co. (subsidiary of Phillips Petroleum Co.), City Natl. Bang Bldg., Houston, Tex. CD 4/22/54.

▲ **T. W. Anderson & Co.**, 1845 Sherman St., Denver, Colo. Owner Builds. **$10,000,000**. HOUSING, incl. 1,000 residences, schools and park development, between S. Broadway and S. Holly St. Orchard Ave. and Douglas Co. line, near DENVER, COLO.

FAR WEST

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS
BRIDGES
October 14, 19, 26 California October 18 Washington
STREETS AND ROADS
October 14, 20, 27 California October 18 Washington

▲ **Calif., San Francisco**—BA 10/17—City and County of San Francisco P. Utilities Comn., City Hall, water tunnel, excav. in conjunction with Sunset and Crystal Springs water lines, Hillsborough, $1,500,000. Plans deposit $20. CD 2/5/45.

BUILDINGS—BA

▲ **Calif., Hayward**—COUNTY OFFICE—BA 10/18—Alameda County, Court House, Oakland, H-type 2 story, wood, steel frame, county office, Winton Ave. and Eastshore Hy. $1,400,000. Plans deposit $50. Edward D. Cerruti, 1440 Broadway, Oakland, archt. CD 5/27.

▲ **Calif., San Francisco**—SCHOOL—BA 11/2—Dpt. P. Wks., City Hall, Luther Burbank Junior High School. $3,134,000. Plans deposit $100. Extended date. Gardner Dailey, 442 Post St., San Francisco, archt. H. J. Brunnier, 608 Sharon Bldg., engr. CD 9/9.

HEAVY CONSTRUCTION—LB & CA

▲ **Engineers Ltd. Pipeline Co.**, 200 Bush St., San Francisco, Calif., CA Est. **$2,000,000**, 82 mi. 10 in. loops west from Red Wash Field, Uintah Co. to Wolf Creek Pass in Wasatch Mountains east of Salt Lake City, UTAH. Salt Lake Pipe Line Co. (subsidiary) Standard Oil Co. of Calif., 225 Bush St., San Francisco, Calif. CD 8/24.

▲ **OREGON**—State Hy. Comn., Highway Bldg., Salem,
Ore.—**Rogers Constr. Co.**, 11760 N.E. Glisan St., Portland, Ore., CA **$903,281** (14 bidders) grading 9.75 mi. Old Oregon Trail Hy. FAP IN-FI-62 (7), Umatilla and Union Counties; CA **$1,120,067**, (11 bidders) grading 0.4 mi., paving 18.8 mi. Old Oregon Trail Hy. FAP IN-FI-67 (5), Malheur Co.;
Ore.—**Babler Bros., Inc.**, 4617 S.E. Milwaukie St., Portland, Ore., CA **$99,163**, (17 bidders) grading 4.43 mi. Willamina-Salem Hy. FAP F-325 (1), Polk Co.;

Ore.—Porter W. Yett, 6500 N.E. Ainsworth St., Portland, Ore., CA $304,741 (3 bidders) grading, paving 2.24 mi. Beaverton-Hillsdale Hy. FAP S-198 (3) and US-198 (4), Multnomah Co.; CA $75,315 (4 bidders) paving 4.63 mi. North River County Rd., FAP S-45 (3), Marion Co.;

Ore.—T. W. Thomas, 10248 N.E. Holladay St., Portland, Ore. CA $200,792 (8 bidders) grading, paving 4.51 mi., 133 ft. concrete bridge, Central Oregon Hy., FAP F-326 (1) Malheur Co. Grand total $2,703,359. Bids Sept. 22. Awarded Sept. 22. CD 9/14.

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento.

Peter Kiewit Sons' Co., 442 Post St., San Francisco, Calif., CA, **$4,275,510**, grading, paving 5.4 mi. freeway and expressway on Hy. 50 and 10 bridges in Oakland, Alameda Co. Bids Sept. 14. CD 9/16, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Calif.—**Gordon H. Ball**, 300 Camille Ave., Danville, Calif., LB **$3,052,569** (9 bidders) four-lane divided freeway 2.6 mi. State Sign Route 24 incl. 6 grade separation structures, Contra Costa Co.;

Calif.—**Madonna Constr. Co.**, P. O. Box 910, San Luis Obispo, Calif., LB, **$1,663,127**, (12 bidders) two addnl. lanes U. S. 101 north of Los Almos and south of Santa Maria to provide a four-lane divided expressway, Santa Barbara Co. Bids Sept. 28. CD 9/1.

BUILDINGS—LB & CA

▲ **Bayshore Constr. Co.**, 744 Flager Ave., Berkeley, Calif. Own Forces, **$6,000,000**, 15 story, rein.-con., steel OFFICE, "Bermuda Bldg.", OAKLAND, CALIF. CD 6/9.

▲ **Bergesen & Tam Constr. Co.**, 535 Merrit Ave., Oakland, Calif. Own Forces. **$6,000,000.** 200-HOME subdivision in Broadview Highlands, OAKLAND, CALIF.

CANADA

HEAVY CONSTRUCTION—BA

STATE HIGHWAY LETTINGS

STREETS AND ROADS
October 12 Ontario

BUILDINGS—BA

▲ **N. B., Fredericton** — CLUBS — BA 10/6 — Defence Constr. Ltd., 56 Lyon St., Ottawa, Ont., Four Junior Ranks Club, Contract "M", Army Camp, Camp Gagetown. $1,400,000. Plans deposit $100.

▲ **Que., East Broughton**—MILL, etc.—Bids Asked—Carey Canadian Miles Ltd., East Broughton, mill bldg. and crushing plant, part of mine expansion, Total est. $7,500,000. General Eng. Co. Ltd., 100 Adelaide St. W., Toronto, Ont., engrs.

BUILDINGS—LB & CA

▲ **Burns & Dutton Concrete & Constr. Co., Ltd.**, 9004 125 Ave. Edmonton, Alta., CA **$1,700,000.** 160 HOUSING UNITS, incl. ground services, Griesbach Barracks, EDMONTON, ALTA. Central Mortgage & Housing Corp., 1006 107 St., Edmonton, Alta. Bids Aug. 24, awarded Sept. 15. CD 8/10.

▲ **Dominion Constr. Co., Ltd.**, 195 W. 2 Ave., Vancouver, B. C., CA **$40,000,000.** 180-ton general purpose and board machine and 300-ton newsprint mill, pulp and paper mill addn., PORT ALBERNI, B. C. MacMillan & Bloedel Ltd., Port Alberni, B. C. H. A. Simons Ltd., 16 E. Hastings Vancouver, B. C., engr. Awarded Sept. 15. CD 1/24.

▲ **Marwell Constr. Co., Ltd.**, 1500 W. Georgia St., Vancouver, B. C., CA **$2,000,000.** main branch BANK addn., Hastings and Seymour Sts., VANCOUVER, B. C. Bank of Nova Scotia, Hastings and Seymour Sts., Vancouver, B. C. Awarded Sept. 16. CD 5/11.

▲ **Atlas Constr. Co. Ltd.**, 4781 St. Catherine St. W., Montreal, Que., CA **$2,603,150** (5 bidders) Contract "K", seven 40-vehicle GARAGES, one 50-vehicle GARAGE, three tank hangars, one GUN DRILL and maintenace BLDG., Canadian Army, Camp Gagetown, FREDERICTON, N. B. Defence Constr. (1951) Ltd., 56 Lyon St., Ottawa, Ont. Bids Aug. 5, awarded Sept. 20. CD 7/13.

▲ **Fraser-Brace Eng. Co. (Ontario) Ltd.**, 80 Richmond St. W., Toronto, Ont., CA, **$7,000,000.** general contract commercial explosives PLANT incl. office, services and process units and magazines, West Ferris Twp., about 5 mi. southeast of NORTH BAY, ONT. DuPont Co. of Canada Ltd., Box 660, Montreal, Que. CD 3/11.

▲ **Ted Poole**, 29 Allard Ave., Dorval, Que. Owner Builds, **$2,700,000.** 100-unit HOUSING program in suburb of Dorval, MONTREAL, QUE. Jean Damphousse, 408 Des Prairies Blvd., Laval de Rapides, Que., archt.

LATIN AMERICA

HEAVY CONSTRUCTION—BA

▲ **El Salvador**—The Comision Ejecutiva del Puerto de Acajutla (CEPA), Edificio Regalado, 2a Avenida Sur, No. 15, San Salvador, is ready to qualify firms interested in bidding on the Acajutla Port construction project. CEPA plans to give companies until the end of October to qualify. Bids may be called for early in November. Present plans involve constr. of new combination pier and breakwater extending out 466 meters from a rocky promontory. A pier head would be built 296.5 meters long and 37 meters wide. Two warehouses on pier head as well as necessary administration buildings. Est. $4,165,000. CD 11/16/53.

(Proposal Advertisements see pp. 107 to 110)

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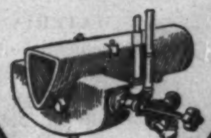

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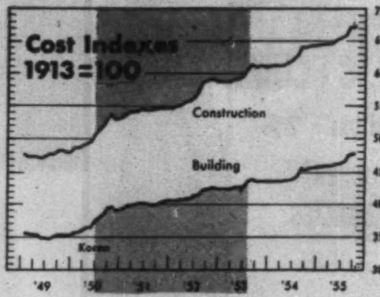

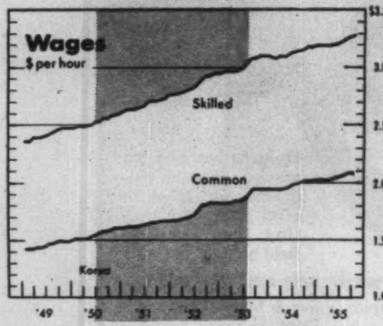

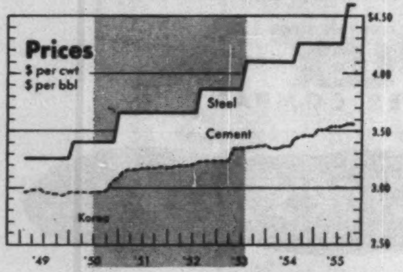

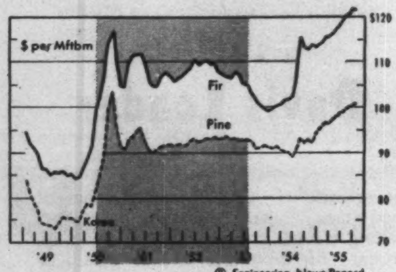

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ENR INDEXES (1913=100), 20-cities' average	1955 Oct.	% Change from last Month	% Change from last Year
Construction Cost	673.95	+0.2	+5.1
Building Cost	480.05	+0.2	+5.4

WAGE RATES, 20-cities' average			
Common	$2.093	+0.3	+3.8
Skilled (aver. 3 trades)	3.286	+0.5	+3.3
Bricklayers	3.544	+0.6	+2.6
Structural Ironworkers	3.276	+0.4	+3.9
Carpenters	3.039	+0.4	+3.6

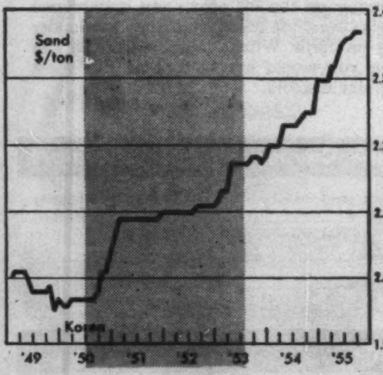
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.567	0.0	+3.1
Structural Steel, (3-mill aver.), per cwt	4.600	0.0	+8.2
Sand, per ton	2.372	0.0	+5.4
Lumber, 2x4 Fir, per M. ft. bm	121.166	−0.2	+7.3
Lumber, 2x4 Pine, per M. ft. bm	100.800	+0.3	+8.4
Common brick, per M	34.880	+0.9	+4.9
Ready-mixed concrete, per c. y	12.631	+0.2	+3.5
Structural Clay Tile, 3x12x12 per M	163.223	+0.4	+0.7

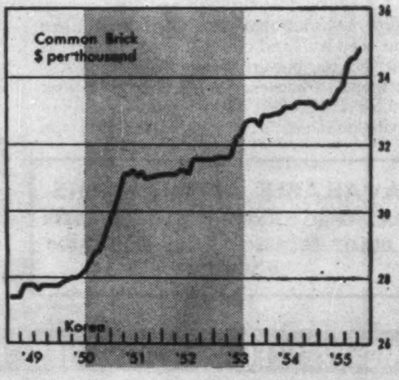
CONTRACTS AWARDED (Millions)	1955 Sept.	1955 9-Months	% Change from '54 Sept.	% Change from '54 Months
Total U. S. (ENR reported)	$1,786.2	$14,134.2	+20.8	+30.5
Private	1,118.3	8,792.0	+37.8	+42.5
Public	667.9	5,342.2	+ 0.1	+14.7
Federal	122.4	1,289.1	+ 8.8	+40.0
ENR Volume Index, '13=100	576	607	+14.5	+25.4

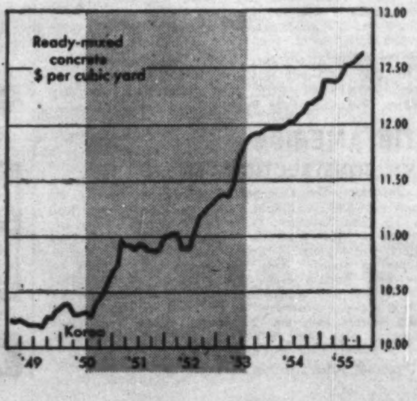
NEW CAPITAL (Millions)				
Total	748.9	10,197.3	+ 1.9	+ 9.9
State & Municipal Bond Sales	323.3	3,160.8	− 38.7	−24.5
Corporate Security Sales	405.9	2,610.9	+109.2	+17.5
Federal (non-federal work)	19.7	961.3	+ 42.8	+25.6
Federal (federal work)	......	3,464.3	....	+64.5

MATERIAL SHIPMENTS & LABOR SUPPLIES (millions)	1955 July (J) Aug. (A)	1955 7-Mos. 8-Mos.	% Change from '54 Mo.	% Change from '54 Yr.-Cum.
Cement, bbls. Bu. of Mines	29.124(J)	164.273(7)	+ 5.1	+ 9.6
Fabr. Struct. Steel, tons AISC	.267(A)	1.900(8)	− 1.8	−12.0
Lumber, mil. ft. bm., NLMA	3.233(J)	23.240(7)	+13.9	+ 8.8
Lumber Prod., mil. ft. bm., NLMA	3.041(J)	22.463(7)	+11.6	+ 4.5
Contract Const. Employ., BLS	2.729(A)	2.454(8)†	− 0.2	− 1.6

†Average







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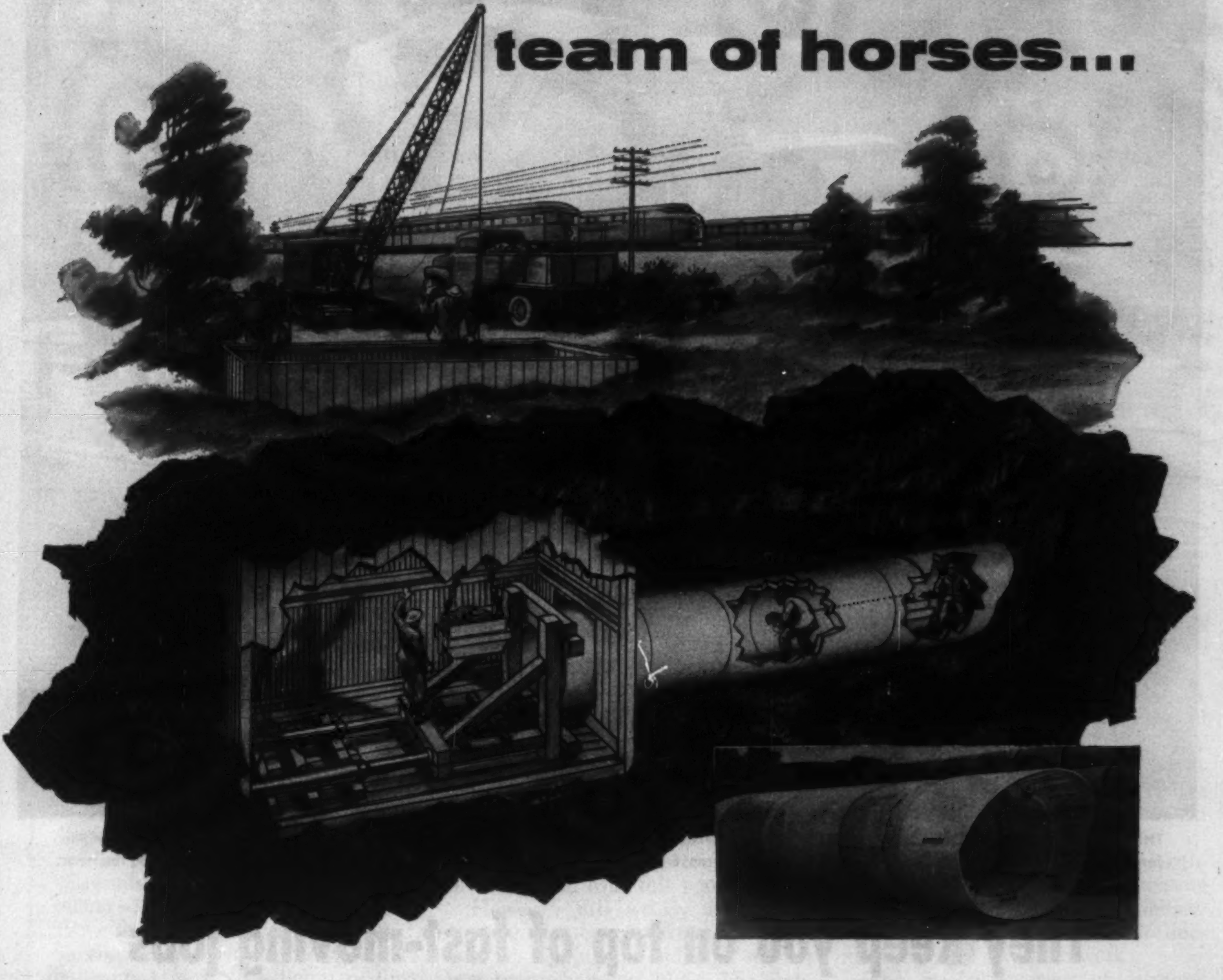

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The unusual maneuverability of the pipe head in the AMRAM jacking system is made possible by the use of truss rods that may be tightened or loosened to alter the forward course. Where necessary, gasket-rings between the leading sections of pipe will provide greater resiliency and flexibility for a wider range of control.

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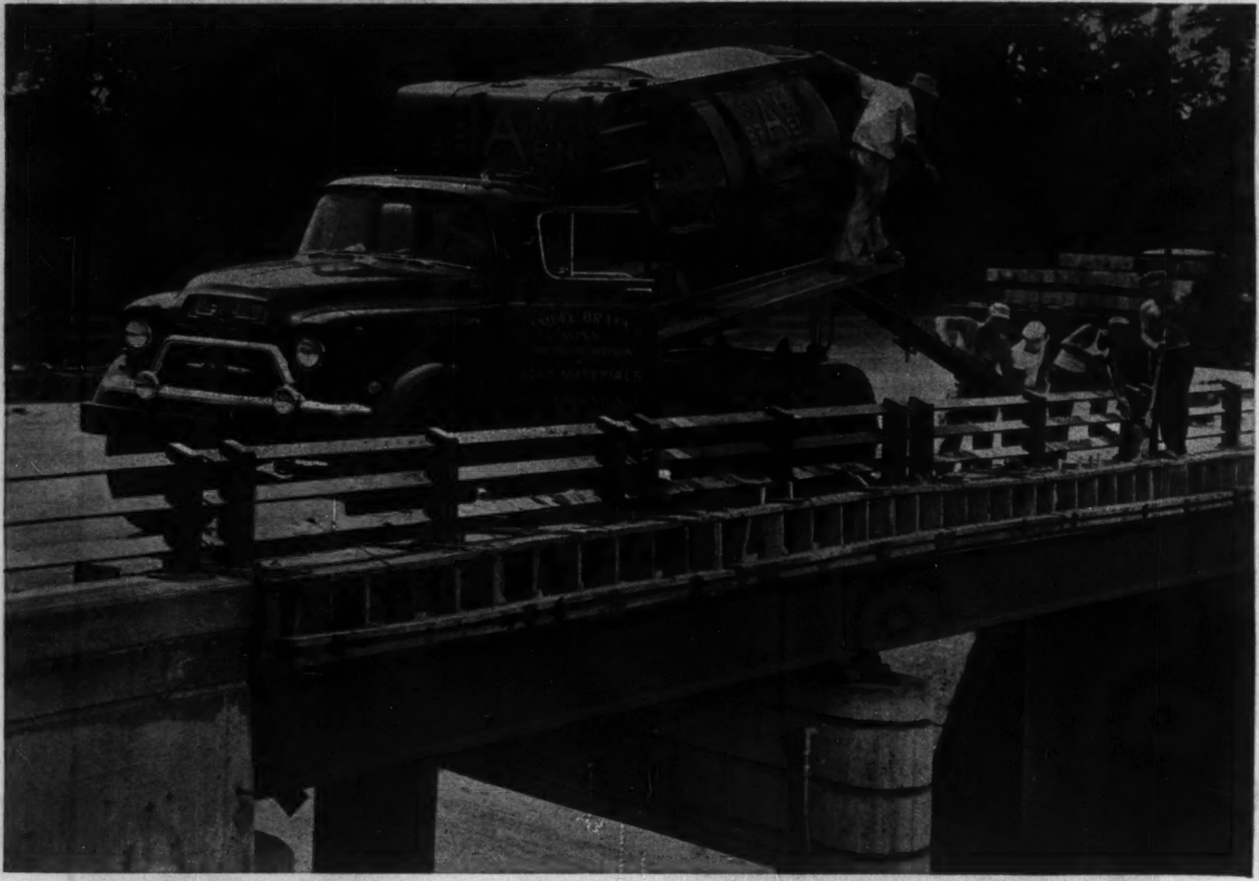

THIS GMC W630-50 IS ONE OF A BIG TEAM that worked New Jersey's Garden State Parkway job. Its power to hustle an 8-yard transit mix comes from GMC's new 225-h.p. Blue Chip gasoline engine. Its extra-capacity axles are rated at 11,000 lbs. front—36,000 lbs. rear.

They keep you on top of fast-moving jobs

EVEN tough, clock-racing jobs like road-building are no problem to contractors using the new GMC Blue Chip tandems.

That's the kind of fast-moving work they're built for. They step along so smartly—swinging top-capacity loads—that you can figure on them for extra trips per day.

New high-torque engines do that. There's a choice of 6—short-stroke sixes, V8's and Diesels. And each one has a horsepower reserve that makes light of the heftiest hauls—pulls you through the roughest going *fast.*

Nine of Them are Hydra-Matic*

You can team this Blue Chip power with money-saving Hydra-Matic in 9 of the models. That's automatic protection against day-after-day punishment that murders ordinary trucks. Manual-shift versions now have big 2-plate 14-inch clutches.

That's the tip-off on their all-over ruggedness. There are massive new frames. *Full-length reinforcements,*** when necessary, are factory-installed. Axles—front and rear—are over-size. Wheels are of a rugged, new design. And Safety Power Steering** makes jockeying—even down in the pit—a snap.

There are 19 of these GMC Blue Chip tandems in all—completely blanketing the 28,000 GVW-70,000 GCW range. Get a complete run-down at your GMC dealer's—now!

**Hydra-Matic standard on many models; optional at extra cost on some others*
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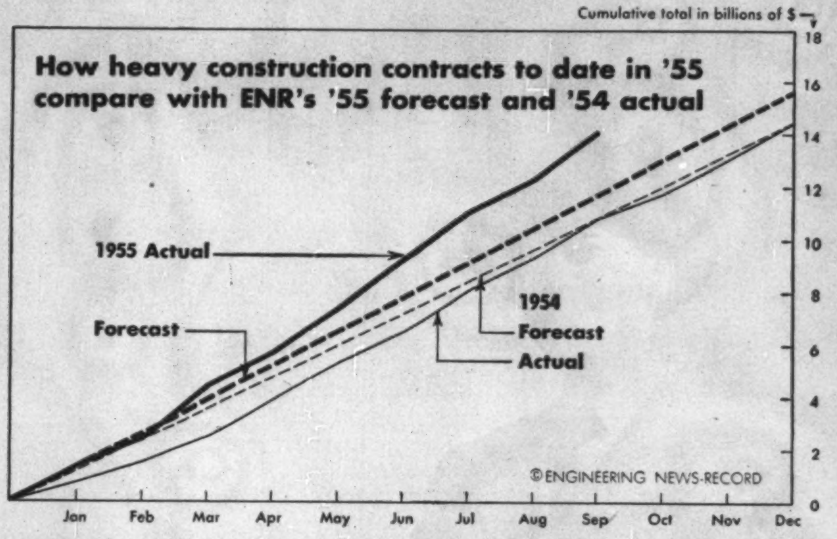

Construction Tempo Picks Up

Construction resumed its boom tempo in September, after slackening a bit in August. Total awards were almost $1.8 billion, a new record for September. On the weekly average basis, awards were 15% ahead of August.

This pushes the nine-months total of awards to an all-time high of $14.1 billion—31% above last year and 15% above the previous record set in 1952. So construction volume continues to pull ahead of ENR's February forecast of a 9% gain this year (see chart above).

- **Housing gains**—Private work sparked the rise, and in this field housing awards were the star performer. They climbed out of a decline in July and August to rack up a weekly average of $121 million in September. This is about equal to the high June rates, though it's below the record months of March and May this year.

However, this weekly average for housing contracts is a record for September, topping the old high set last year by a whopping 40%. This indicates that the housing boom hasn't yet shot its bolt, though awards in coming months are not expected to reach higher levels.

Private unclassified awards were another big factor in the September boom. This was largely accounted for by a $110-million contract for a gas pipeline from Baton Rouge to Miami being built by Midwest Constructors, Inc., of Tulsa, for Houston Gas & Oil Corp., of Houston.

Commercial building recovered from its August skid. But volume, at a weekly average of $28.3 million, was off 14% from September of last year and was below the high levels of May and June.

Industrial building declined for the second consecutive month, with a weekly average of $43.4 million. However, this was 22% above September 1954, and was the second best September on record.

- **Public works**—Federal awards climbed a little, while state and local contracts held steady. Federal contracts averaged $24.4 million, up from the August low but still the second lowest month so far this year. State and municipal awards averaged $109 million per week, an eyelash below the September record for this category set last year.

Sharp increases in sewerage, earthwork & waterways, and public housing joined with small increases in highway and bridge contracts to offset declines in other types of public work.

The weekly average of highway awards was the second highest for any

(*Continued on page 102*)

ENGINEERING CONSTRUCTION CONTRACTS—SEPTEMBER 1955

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000*

Five Weeks—Thousands of Dollars (000 omitted)

	September, 1955							U. S. Cumulative Nine Months		% Change	Canada September
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1955	1954	'54 to '55	1955
Public Works											
Waterworks	377	3,035	2,390	8,660	11,519	1,347	**27,328**	**205,061**	175,013	+17	5,334
Sewerage	2,296	20,762	2,336	7,217	8,205	7,337	**48,153**	**300,936**	281,845	+ 7	7,337
Bridges	6,022	9,569	10,059	6,472	11,983	3,397	**47,502**	**357,081**	382,802	− 7	1,893
Earthwork and waterways	544	16,257	26,940	446	14,223	9,738	**68,148**	**406,647**	207,172	+96	14,440
Streets and roads	11,739	75,796	42,213	28,421	61,911	14,302	**234,382**	**1,662,296**	1,443,419	+15	16,431
Public buildings, residential	543	29,705	3,203	1,345	2,370	....	**37,166**	**220,318**	182,847	+20	14,067
Other public buildings	17,632	42,463	14,542	25,075	26,682	23,751	**150,145**	**1,311,572**	1,323,774	− 1	19,981
Unclassified	5,006	20,814	5,004	2,448	16,278	5,492	**55,042**	**878,241**	662,531	+33	10,227
Total public	**44,159**	**218,401**	**106,687**	**80,084**	**153,171**	**65,364**	**667,866**	**5,342,152**	**4,659,403**	+15	**89,710**
Federal government (included in above classifications)	4,934	30,026	34,876	2,478	33,520	16,547	**122,381**	**1,289,102**	920,518	+40	31,020
Private											
Bridges	....	....	....	....	121	....	**121**	**1,829**	6,650	−73	....
Industrial buildings	3,705	70,905	17,207	59,662	39,847	25,896	**217,222**	**2,055,192**	1,454,936	+41	21,629
Mass housing	16,760	235,060	2,391	153,188	135,237	60,036	**602,672**	**4,777,739**	3,210,992	+49	24,004
Commercial buildings	2,527	37,439	14,986	33,614	38,281	14,691	**141,538**	**1,272,740**	1,014,231	+26	10,369
Unclassified	100	4,618	110,730	5,337	35,302	693	**156,780**	**684,519**	481,972	+42	1,249
Total private	**23,092**	**348,022**	**145,314**	**251,801**	**248,788**	**101,316**	**1,118,333**	**8,792,019**	**6,168,781**	+43	**57,251**
Total Engineering Construction:											
September, 1955—5 weeks	**67,251**	**566,423**	**252,001**	**331,885**	**401,959**	**166,680**	**1,786,199**	....	....	....	**146,961**
August, 1955—4 weeks	58,515	176,498	111,674	402,721	359,313	130,947	**1,239,668**	....	....	....	132,238
September, 1954—5 weeks	81,656	359,878	267,070	293,165	329,952	146,832	**1,478,553**	....	....	....	135,937
Nine Months—1955	**676,815**	**3,954,746**	**1,540,648**	**3,109,125**	**3,296,703**	**1,556,134**	....	14,134,171	....	+31	**1,266,545**
Nine Months—1954	575,624	2,791,479	1,480,137	2,233,858	2,472,237	1,274,849	....	....	10,828,184	....	1,289,412
% Change '54 to '55	+18	+42	+5	+39	+33	+22	....	....	....	....	−2

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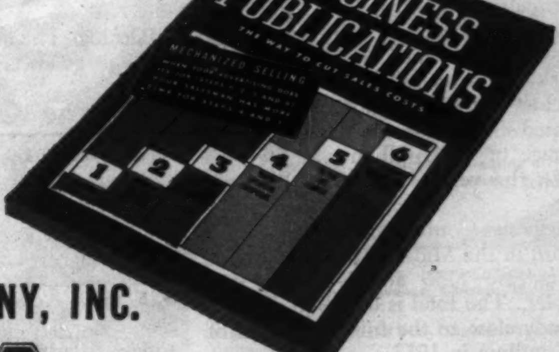

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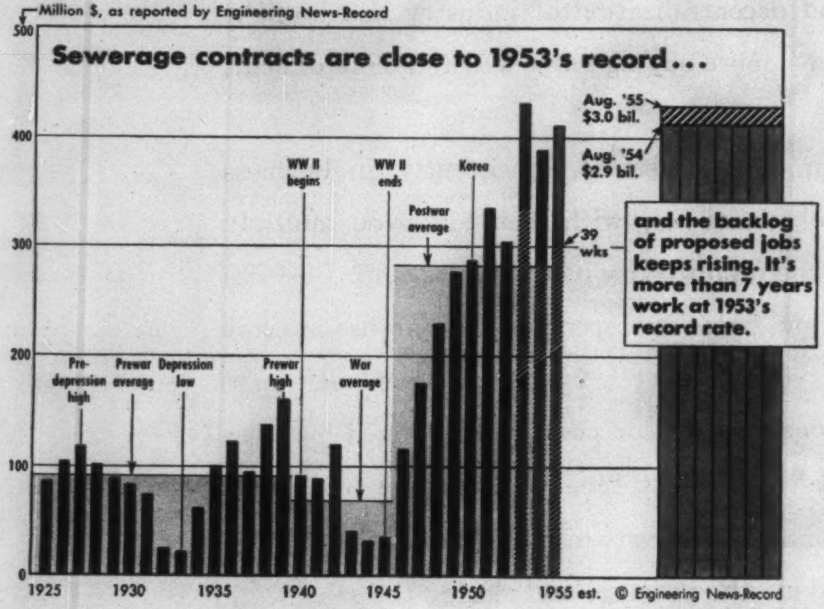
HEADQUARTERS FOR BUSINESS INFORMATION

month this year—almost $47 million. Awards for non-residential public buildings declined to $30 million per week, lowest since May. But sewerage contracts were the heaviest so far in 1955. Waterworks dipped again in September, but volume tops last year for the fourth consecutive month.

• **Regions**—The Mid-Atlantic had its third biggest month in history. The weekly average was $113 million. This surge followed a very sharp drop in August. So far this year, this region has had the biggest gain of any area.

Contract volume was up sharply in the South. For the year to date, contracts in the South are up 5%. That's by far the smallest gain for any region.

September volume was lower than August in all other regions except for the Far West, where it held steady on the basis of the weekly average. However, volume for the year so far is running well ahead of last year in all these areas.



Sewerage Awards: 7% Ahead of 1954

Sewerage contractors are having another big year. Contracts awarded during the first nine months total $301 million, 7% more than in 1954 but second by a 10% margin to 1953's record volume (chart).

This year started out with a record first quarter of $95 million. And business has continued to roll up an impressive total which should bring the year's volume close to ENR's February forecast of $410 million. Awards increased sharply last month. The weekly average of $9.6 million was the best so far this year.

• **Regions**—Contracts are headed for a record in the Mid-West, where awards so far are 17% ahead of last year (table). The total is over $80 million, already close to the full-year record of $85 million in 1953.

Biggest gain is in the Mid-Atlantic—37% over the same period last year. But the total is running far behind the record set in 1953. The Far West is 17% ahead so far over 1954, which was a record full year.

By contrast, sewerage contracts are off 13% and 14% in the South and West-of-Mississippi, while New England is down 34% from last year's record volume.

• **Backlog**—The outlook for future business is good because of the record backlog of proposed projects (table). The total backlog at the end of August was nearly $3 billion—seven years' work at 1953's record rate. The backlog has been growing more slowly since 1953, but it is still rising in spite of the heavy volume of contract awards in the past three years.

The 1% gain in the total backlog over the past twelve months has come from a 12% climb in the Far West (table), plus small gains in the Mid-West and West-of-Mississippi. Backlogs in other regions have declined slightly.

States with the biggest backlogs are: California, $394 million; New York, $352 million; Ohio, $292 million; Texas, $238 million; Michigan, $219 million; Illinois, $156 million; and Pennsylvania, $152 million. These seven states account for 61% of sewerage projects in the planning stage.

Sewerage Contract Awards and Backlog by Regions

As reported by Engineering News-Record

	Contract awards, first 9 months		Backlog of proposed projects, Aug. 31, '55	
Region	'55 Volume (millions)	% chg. '54-'55	Estimated cost in millions	% chg. Aug. '54-Aug. '55
U. S. total	**$300.9**	+7	**$2,974**	+1
New England	14.5	−34	138	−5
Middle Atlantic	77.3	+37	592	−3
South	32.8	−13	399	−4
Middle West	80.4	+17	776	+3
West of Mississippi	51.8	−14	558	+1
Far West	44.1	+17	511	+12

Wage Boosts Push Up Indexes Slightly to New Record Highs

Both of ENR's cost indexes crept up only 0.2% in the past month but reached new record highs for October. This is the second straight month that costs have been practically unchanged.

The Construction Cost Index is 673.95, based on 1913=100. This is a gain of 5.1% in a year. The Building Cost Index is 480.05, also based on 1913=100. It is 5.4% higher than a year ago.

Scattered wage increases for skilled workers in five cities more than offset a mild dip in lumber prices. Douglas fir 2x4s declined from $1 to $5 per Mftbm in four cities, while they rose in two cities. This brought the first decline since September 1954 in the ENR fir price average. Pine 2x4s rose in four cities, dropped in two others.

The wage increases took place in Birmingham, Chicago, Denver, Los Angeles, and Pittsburgh. Nearly all of them were 10 cents per hour or less.

(*B&F continued on page 104*)

Richmond-Petersburg Pike Bonds Sell Like Hot Cakes

As everyone expected, financing of the $69-million Richmond-Petersburg turnpike was a smashing success. Underwriters bought the bonds last week from the Turnpike Authority, and were able to resell them immediately. Original buyers were soon offering the bonds at a premium of ¾ of a point above the original offering price.

However, the authority is paying a net interest cost of 3.50%. That is not high, but it is a considerable jump from the 2.93% cost of the Dallas-Fort Worth borrowing in June (ENR June 23, p. 78).

Of course, every turnpike is a separate proposition that must be studied on its own merits. But the wide difference between the last two turnpike financings suggests that the private Dallas-Houston bond issue and the huge Illinois Turnpike offering might have to pay stiff rates if they are brought on the market this month, as planned.

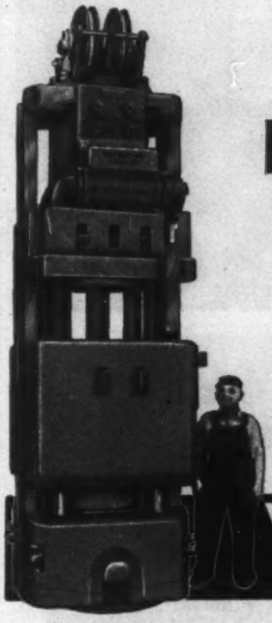
The Richmond-Petersburg pike will be a "bridge" highway between two cities, and in addition can expect a sizable volume of through traffic. The 35-mi highway is expected to open in April 1958. Traffic engineers figure that by 1960 debt service will be covered 1.47 times, and that the whole issue can be paid by 1978.

Higher Prices and Rentals On Construction Equipment

Prices of construction equipment rose about 1% in August alone, the biggest rise for a single month shown since July 1953. That's the story told by the construction machinery price index, just released by the Bureau of Labor Statistics. It shows prices are at a record high.

Rental rates on construction equipment have climbed faster than prices of new rigs. A compilation made by Associated Equipment Distributors, for informational purposes only, shows the average rates this year for many items are up 10% to 25% over 1953. (For further details, see ENR's Cost Issue, Sept. 29, p. 222.) This compares with an average 4.2% increase in manufacturers' prices between August 1953 and last August, as shown by the BLS index. The climb was 3.4% in the past year alone.

Sharpest price increases have come in power cranes and shovels, up 6.7% over August 1954; portable air compressors, up 6.4%, and mixers and pavers, up 5.5%. There were smaller increases in scrapers and graders (up 1.7%), and tractors (up 1.6%). Machinery for mounting on tractors rose 0.7%.



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BUSINESS AND FINANCE

Austin Building Price Index Makes Biggest Jump Since '50

The price index of industrial building construction kept by Cleveland's Austin Co. moved up sharply for the third quarter. The index moved from 195 to 199, the biggest gain since 1950. This accounts for half of the 4.2% gain in the past 12 months.

Austin's president, George Bryant, says the rise reflects higher costs of labor and materials, particularly steel and copper. He warns material shortages will get worse if building continues at its present high level.

Business Briefs . . .

- **Cement goes up**—Several producers have raised prices of cement for the fourth quarter. Boosts range from 10 cents to 25 cents a barrel. The raises come at plants in the Buffalo area, in Ohio, and in Florida.

- **Dravo Corp.**, of Pittsburgh, plans to make and sell prefabricated heliports through an arrangement with Standard Heliports, Inc., of Minneapolis.

- **Auto plants**—Chrysler Corp. will start an $85-million plant between Cleveland and Akron. Ford announces it will spend $500 million for construction and equipment in 1956, including many projects already announced.

- **Tire plants**—Goodyear plans to spend $100 million for plant and equipment in the next two years. U.S. Rubber will spend $30 million through next year. Firestone plans a big butadiene plant.

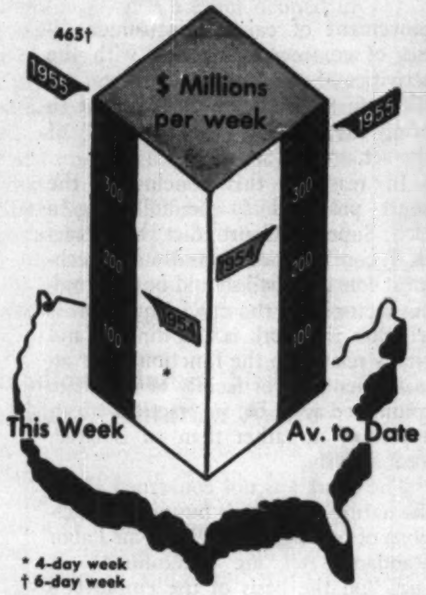
- **Structural steel** bookings ran over 300,000 tons for the fourth straight month, according to the American Institute of Steel Construction. But shipments are still running below last year. Bookings for the first eight months total over 2.3 million tons, up 37%, while shipments total 1.9 million, down 12%. The total backlog at the end of August was 1¾ million tons.

- **Southern Bell Telephone Co.** will spend $240 million on plant and equipment this year and $250 million in 1956, compared with $188 million last year.

- **Savings banks** bought $225 million of mortgages in August, according to the National Assn. of Mutual Savings Banks. This was the only type of investment in which they increased their holdings. Their mortgages now total over $16.4 billion, 53.4% of assets.

Activity This Week

As reported to ENR
(In millions of dollars)



* 4-day week
† 6-day week

Amount of contracts let

(millions of dollars)

By Ownership	This Week†	Cumulative 40 wks 1955	Cumulative 40 wks 1954	% chge
Federal	$12.3	$1,301.4	$950.7	+37
State and municipal ...	122.1	4,175.1	3,809.0	+10
Total public....	134.4	5,476.5	4,759.7	+15
Total private...	330.1	9,122.2	6,261.4	+46
U. S. Total....	$464.5	$14,598.7	$11,021.1	+32
By type of work				
Waterworks	$2.4	$207.5	$185.0	+12
Sewerage	10.5	311.5	285.5	+9
Bridges	23.2	382.0	394.7	−3
Highways	54.1	1,716.2	1,473.7	+16
Earthwork, waterways ...	2.8	409.3	223.0	+84
Buildings:				
Public, excl. housing ..	27.4	1,339.1	1,349.7	−1
Public housg..	..	220.5	184.7	+19
Private housg.	158.7	4,936.4	3,282.1	+50
Commercial ..	26.3	1,229.0	1,019.2	+21
Industrial ...	119.1	2,174.3	1,466.0	+48
Unclassified	40.0	1,602.9	1,157.5	+38
U. S. Total.....	$464.5	$14,598.7	$11,021.1	+32

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.
† 6-day week

New capital for construction

(millions of dollars)

	Week of Sept. 29	Cumulative 39 Wks 1955	Cumulative 39 Wks % Chge '54-'55
Corporate securities	$112.2	$2,610.9	+18
State and municipal:			
All except housing.....	92.9	3,088.8	−25
Housing	...	72.0	−21
Federal loans	3.2	107.9	+17
Federal aid	...	853.5	+27
Total nonfederal	$208.4	$6,733.0	−6
Federal appropriations:			
In U. S..............	...	$3,379.7	+63
Outside U. S..........	...	84.6	+155
Total new capital........	$208.4	$10,197.3	+10

ENR cost and volume indexes, 1955

		Base years = 100 1913	1926	1949
Construction cost ...	9/29†	673.95	323.97	141.28
	9/1†	672.80	323.41	141.04
Building cost	9/29†	480.05	259.50	136.46
	9/1†	479.21	259.05	136.22
Volume	Sept.	576	234	166
	Aug.	508	207	147

† Official ENR Indxees for Sept. & Oct.

Darex Diary

No. 6 of a series

by Henry L. Kennedy

Member, American Concrete Institute

Manager, Construction Products
Dewey & Almy Chemical Company

****A look at new techniques and developments in concrete construction.***

FREQUENTLY I WONDER if we are all fully aware of the tremendous amount of research and development that is being directed toward improvements in concrete construction. I was reminded of this when I reviewed some typical examples of this activity that my staff and I have encountered recently in our travels throughout the United States.

As an illustration, consider the mortar air meter that has been developed and is under final test during construction of the power features of the St. Lawrence Seaway Project. This apparatus, which is intended to measure directly the air content of the mortar in concrete by pressure method, was designed and will be tested by its originator, who is Concrete Engineer for the project. It is pretty generally agreed that it is the air content of the mortar, and not of the concrete, that counts as far as durability is concerned; and if the mortar meter performs as the designer intends (there is good reason to indicate that it will) this will be one more step toward advancing the technology of concrete.

Engineers in the Illinois Highway Department have developed a technique to measure the air content of hardened concrete by pressure methods. Employing a hydraulic ram and pressures up to 5000 psi., the air content is measured by recording the amount of water that is forced into the voids in the concrete. As with the linear traverse method—whereby the voids in air entrained concrete are determined by actual count—the high pressure air meter provides another and much speedier means to evaluate hardened concrete in a post-construction investigation.

Continued research and investigation in the field of concrete control is evidenced by the work that has been done in recent years toward development of the "ball" penetration test to measure concrete consistency. The ball test is simple to perform and has the advantage of permitting fast consistency determinations to be made "in place", without disturbing the concrete. This feature is helpful in spotting segregation and premature stiffening and also allows consistency checks to be made at any point in the concreting operation. The results of participating and cooperative effort on the part of a large ready mix producer on the West Coast, several state highway departments, the Corps of Engineers, and the University of California are manifested in the recent adoption of the method as a tentative standard by ASTM.

There are many, many other instances that I could cite, but space permits only brief mention of a few: (1) An electronic indicator for DAREX AEA dispensers has just been developed by our distributor in Illinois. The instrument is a visual aid to the batch operator that tells him by an indicator light that the DAREX AEA has been properly dispensed into the mixer. (2) Our DAREX AEA distributor for Kentucky is working closely with state highway officials in that state conducting tests to develop optimum field techniques to restore badly eroded concrete bridge decks. DARAWELD is used as the agent to bond the overlay to the old concrete. (3) Our distributor for the northwest is improving a DAREX AEA dispenser for paving mixers that they developed a few years ago. All along the line,—our Dewey and Almy technical research staff, sales personnel, and manufacturing people—join with engineers and contractors in the search for improvements in techniques and apparatus used in the field of concrete construction. Is there a project we should be working on with you?

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Engineering Society Asks Court Review

NSPE requests U. S. Supreme Court to hear appeal from decision subjecting engineering firm to wage-hour law

The National Society of Professional Engineers has filed a "friend of the court" brief in the United States Supreme Court, in support of a petition that asks the high court to hear an appeal from a decision holding a consulting engineer subject to the Fair Labor Standards (wage-hour) Act.

Involved in the appeal is Kenneth R. Brown, consulting engineer, doing business as Brown Engineering Company in Des Moines, Iowa. The original action was brought by the U. S. Secretary of Labor to enjoin Brown from employing members of his staff on local projects related to interstate commerce without paying time-and-a-half for overtime in excess of 40 hours. Reversing the district court which dismissed the action, the Court of Appeals for the Eighth Circuit ruled that Brown was subject to the law.

In its brief to the Supreme Court, NSPE says the basic point, affecting all consulting engineers, is that engineering is a profession and not a business. Hence, it should not be deemed within the federal law directed primarily at regulation of business and commercial enterprises.

"The issue here, in essence," the brief states, "is whether primarily intellectual, non-standardized and unique service, requiring advanced knowledge and training in a professional field, shall be deemed in the same classification as normal business and commercial operations."

• How it started—When the case arose, Brown had approximately 43 employes. Construction projects with which he had been associated and around which the action centered were these: Paving sections of 37 existing streets, all carrying interstate commerce, in four Iowa towns; enlarging a power plant of an interurban railroad that used some of the power to operate a railway moving freight in interstate commerce; installation of additional equipment in the municipal power plant of Pella, Iowa, which supplies power to companies that ship substantial portions of their products out of state; construction of a headquarters building for three rural electrification cooperatives that furnished energy to railroads and factories engaged in interstate commerce, and to telephone companies and radio stations.

Brown's services included preparation of plans and specifications and, through his resident engineer, inspection of work and materials. None of the projects was in the nature of new construction. All were located within the state. The question of professional exemption under section 13 (a) (1) of the act was not discussed by the circuit court, nor did it rule on whether Brown was "in the production of goods for commerce."

• Court's reasoning—The court's attention was directed solely to the question of whether Brown was an employer engaged in interstate commerce. And it was on this point that the district and circuit courts diverged.

The lower court didn't see how Brown's activities on these specific Iowa projects could pull him into interstate commerce. His work on those jobs, it said, was "too far removed from his main activities to have more than a remotely incidental effect." But the circuit court said the Brown "employees' preparation of plans and specifications for the repair and improvement of existing instrumentalities of commerce, together with the activities of the 'resident engineer' at the actual job site, were sufficient to bring them within the coverage" of the act.

In reaching this conclusion, the court professed to be following a U. S. Supreme Court edict that "practical considerations" and not "technical conceptions" should be the guiding factor; that the crucial question is whether the work is "so directly and vitally related to the functioning of an instrumentality or facility of interstate commerce as to be, in practical effect, a part of it, rather than an isolated, local activity."

The court was not concerned about the nature of Brown's business. "Questions of coverage under the Fair Labor Standards Act are determined," it said, "on the basis of the employee's activity and not by the nature of the employer's business."

Is Overtime Over?

Representatives of Vancouver unions, which have spearheaded the drive for abolition of overtime, are expected to line up solidly to support the issue before the Canadian Congress of Labor convention in Toronto next week.

"There's no doubt British Columbia unions will support the principle wholeheartedly," says B. C. Federation of Labor secretary George Home. "Doctors have proved there is a point of working beyond which the adverse effect on health rises steeply."

The resolution urging abolition of overtime will be presented to the convention by the Winnipeg Labor Council "because it does not actually create benefits to the employes, but is a penalty in the form of taxation, loss of social contacts and undue wear and tear on health."

Home said, however, that CCL could only recommend that individual affiliated unions seek abolition of overtime in bargaining with employers.

Prevailing Wages

Contractors and unions disagree on Florida law

The role of union wage scales in prevailing wage determinations has become a controversial issue in the application of the new prevailing wage provisions enacted this year by the Florida legislature.

At a hearing in Tallahassee, where unions, contractors and state officials aired opposing views, the Florida Federation of Labor, the AFL and the CIO argued that the legislature intended to set the union scale as the prevailing wage rates in a metropolitan district and surrounding areas.

Contractors said determinations should be restricted to individual cities or counties with no general lumping for a given area. And James T. Vocelle, chairman of the State Industrial Commission, interpreted the law this way: "The law compels us to find the wage scale paid to the majority in a particular skill as the prevailing wage in each civil division of the state. If the legislature had intended us to use the union scale, it would have put it into the law."

Sparking interest in the controversy is the presence of a number of open-shop contractors within the state.

Under the law, the State Industrial Commission has the job of determining wages for public contracts in excess of $5,000, excluding those for roads and highways but including contracts for bridges costing over $50,000 or built in counties with a population exceeding 100,000.

Prevailing wages are not defined in the statute, which states that "... the rate of wages ... shall be not less than the prevailing rate of wages for similar classifications of work in the city, town, village or other civil division of the state in which the public work is located."

State Senator Charles Johns, who sponsored the law, said the union scale was intended to be the determining factor and that metropolitan rates should govern surrounding counties.

Canadian Painters' Strike Outdoes Arbitration Award

A twelve-day painters' strike that stalled millions of dollars worth of construction in Calgary, Alta., has ended with a new agreement granting a wage increase of 10 cents an hour.

The painters walked out when the Decorating Contractors Association refused to accept a government arbitration board recommendation of a 10-cent increase, retroactive to Aug. 1, plus another 5 cents next year. Although union members had originally asked for 30 cents, they were willing to accept the arbitration award, which is not binding under the law.

Under the new contract, which runs to Dec. 31, 1956, new employes must join the union within 30 days, and job applicants holding Alberta government tradesmen certificates are given employment priority.

Effective immediately, the new scale for brush painters is $1.80. For spray painters, it's $2.00.

Labor Briefs . . .

• **Merger**—Following the U. S. pattern of the AFL and CIO, the Canadian Trades and Labor Congress and the Canadian Congress of Labor plan to merge next spring into a single organization encompassing a million members. The joint convention for adoption of the plan is to meet April 23.

• **Wage boost**—Ending a three-week strike, AFL plasterers in California's San Mateo County gave up their demand for 4% vacation pay and settled for a 16.75-cent increase in basic rates. Retroactive to July 28, the new scale is $3.54¼ an hour.

• **Strike**—In Louisville, Ky., members of Sheet Metal Workers' Local 110, who quit work Sept. 6 to hold a "continuous meeting," have officially gone on strike in an effort to win a 25-cent wage boost. The local's jurisdiction covers Kentucky and part of Indiana.

Bids: October 18, 1955

Texas Turnpike Authority

DALLAS-FORT WORTH TURNPIKE PROJECT
NOTICE TO CONTRACTORS

Sealed proposals for constructing 3.182 miles Grading and Drainage from Meyers Road in Dallas County to Chalk Hill Road in Dallas County covered by Contract No. D-FW 25, in Dallas County, will be received at the Texas Turnpike Authority, 214 First Federal Savings Building, Austin 1, Texas, until 2:30 P. M., October 18, 1955, and then publicly opened and read.

This is a "Turnpike Project" as defined in House Bill No. 4, Chapter 410, Page 967, Acts of the 53rd Legislature, 1953, Regular Session (Codified as Article 6674v, VRCS). No provisions herein are intended to be in conflict with the provisions of said Act.

Section 5(m) of said Act states that "All contracts of the Authority for the construction, repair, or maintenance of any turnpike project shall, insofar as applicable, be made and awarded under the same conditions, terms, requirements and provisions as are now provided for with respect to contracts of the State Highway Department in Sections 8 and 9 of Chapter 186, pages 457, 458, Acts, Thirty-ninth Legislature, 1925, as amended by Chapter 103, page 286, Acts, Forty-third Legislature, First Called Session, 1933, and Sections 10 and 13 of Chapter 186, page 458, Acts, Thirty-ninth Legislature, 1925, codified as Article 6674h, 6674i, 6674j, and 6674m, Vernon's Civil Statutes, and in the making and awarding of such contracts, the Authority shall, insofar as applicable, be under the same duties and responsibilities with respect thereto as are now imposed upon the State Highway Department by the terms and provisions of the Statutes herein enumerated."

In accordance with the provisions of said House Bill, the Texas Turnpike Authority has adopted from the Texas Highway Department and set forth in the proposal the wage rates, for each craft or type of workman or mechanic needed to execute the work on the above named project, now prevailing in the locality in which the work is to be performed, and the Contractor shall pay not less than those wage rates as shown in the proposal for each craft or type of laborer, workman or mechanic employed on this project.

Legal holiday work shall be paid for at the regular governing rates.

Plans and specifications covering the proposed construction may be seen for examination and information at the office of the Texas Turnpike Authority, 214 First Federal Savings Building, Austin 1, Texas, at the Dallas-Fort Worth Turnpike Project Office at 315 S. E. 14th Street, Grand Prairie, Texas, and at the office of the Section Engineer, Turnpike Engineers, at 205 West Main Street, Arlington, Texas. Proposals and plans may be obtained from the Texas Turnpike Authority, 214 First Federal Savings Building, Austin 1, Texas, upon the payment of Twenty-five ($25.00) dollars which sum will not be refunded. The usual rights are reserved.

Bids: October 18, 1955

Texas Turnpike Authority

DALLAS-FORT WORTH TURNPIKE PROJECT
NOTICE TO CONTRACTORS

Sealed proposals for constructing Twin bridges at Ederville Road, Cottonwood Creek and Arlington Park Creek and a single bridge at Randell Mill Road covered by Contract No. D-FW 28, in Tarrant County, will be received at the Texas Turnpike Authority, 214 First Federal Savings Building, Austin 1, Texas, until 2:30 P. M., October 18, 1955, and then publicly opened and read.

This is a "Turnpike Project" as defined in House Bill No. 4, Chapter 410, Page 967, Acts of the 53rd Legislature, 1953, Regular Session (Codified as Article 6674v, VRCS). No provisions herein are intended to be in conflict with the provisions of said Act.

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Bids: October 17, 1955

City of Fort Pierce, Florida

SITE OF SEWAGE TREATMENT PLANT

SEALED PROPOSALS will be received by the City Manager, City of Fort Pierce, Florida, until 5:00 P.M. (Eastern Standard Time) on October 17, 1955, and opened by the City Commission at a meeting starting at 7:30 P.M. on this date in the City Hall, Fort Pierce, Florida, for the construction of a site for a sewage treatment plant, said construction involving hydraulic fill, bulkheading, paving, a sewage force main under water, and an outfall line.

All material and equipment furnished and all work performed shall be in accordance with the plans, specifications and contract documents pertaining thereto, which may be examined at the office of the City Manager, Fort Pierce, Florida, and at the office of Reynolds, Smith and Hills, Architects and Engineers, 227 Park Street (P.O. Box 4817) Jacksonville, Florida. Plans and specifications may be purchased from Reynolds, Smith and Hills, Architects and Engineers, for the sum of $5.00 per set, which will not be refunded. Individual copies of the specifications and partial sets of drawings may be procured for $2.00 per copy and $0.50 per sheet respectively, not refundable.

A Bid Bond properly executed by the Bidder and by a qualified Surety, or a certified or cashier's check on any National or State Bank, in a sum not less than five (5%) percent of the amount bid, made payable to the City of Fort Pierce, Florida, must accompany each bid as a guarantee that the Bidder will not withdraw from the competition after opening the bids, and in the event the contract is awarded to the Bidder, he will, within ten (10) days thereafter, enter into contract and furnish the required bond, failing which he shall forfeit deposit as liquidated damages. The Bid Bond and Performance Bond are required to be secured from an agency of the surety or insurance company, which agency shall have an established place of business in the State of Florida and be duly licensed to conduct business therein.

Each bid shall be addressed to the City Manager, Fort Pierce, Florida, marked "Site for Sewage Treatment Plant, City of Fort Pierce, Florida", and delivered to the office of the City Manager, City Hall, Fort Pierce, Florida, either by a representative of the bidder who shall obtain a receipt therefor or by registered mail with return receipt requested.

The City reserves the right to waive informalities in any bid; to reject any or all bids in whole or in part, with or without cause, and/or to accept the bids that in its judgment will be for the best interests of the City of Fort Pierce, Florida.

CITY MANAGER
CITY OF FORT PIERCE, FLORIDA

OFFICIAL PROPOSALS

***RATE:* The rate for Official Proposal advertising is $1.80 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.**

***CLOSING DATE:* Friday 10:30 A.M. for issue dated the following Thursday.**

SEND COPY TO:
Official Proposal Division,
Engineering News-Record
330 West 42nd Street
New York 36, N. Y.

Bids: October 17, 1955

Gideon Putnam Hotel Geyser Park, Saratoga Springs, N. Y.

NOTICE TO BIDDERS
EMPLOYEES DORMITORY

Separate sealed proposals covering Construction, Heating, Sanitary and Electric Works for Employees' Dormitory Gideon Putnam Hotel, Geyser Park, Saratoga Springs, New York, in accordance with Specifications 10-C; 10-HV; 10-S and 10-E and accompanying drawings will be received by the Saratoga Springs Authority at its offices in the Administration Building, Geyser Park, Saratoga Springs, N. Y., until 2:30 P.M. Eastern Daylight Saving Time (1:30 P.M. Eastern Standard Time) on Monday October 17, 1955, when they will be publicly opened and read.

Each proposal must be made upon the form and submitted in the envelope provided therefor and shall be accompanied by a certified check, made payable to the Saratoga Springs Authority, of 5% of the amount of the bid as a guaranty that the bidder will enter into the contract if it be awarded to him. The specification number must be written on the front of the envelope. The blank spaces in the proposal must be filled in, and no change shall be made in the phraseology of the proposal. Proposals that carry any omissions, erasures, alteration or additions may be rejected as informal. The Saratoga Springs Authority reserves the right to reject any or all bids. Successful bidders will be required to give a bond conditioned for the faithful performance of the contract in the sum of 100% of the amount of the contract and a separate bond for the payment of laborers and materialmen in the sum of 100% of the amount of the contract.

Drawings and specifications may be examined free of charge at the office of the Saratoga Springs Authority, Administration Building, Geyser Park, Saratoga Springs, New York, and at the office of the Architect, August Lux and Associates, 143 Washington Avenue, Albany, New York.

Drawings and specifications may be obtained at the above named office of the Saratoga Springs Authority, by making a deposit for each set as follows:—Construction $20.00, Heating $10.00, Sanitary $10.00, Electric $5.00 or by mailing such deposit to the Saratoga Springs Authority at the above address. Checks should be made payable to the Saratoga Springs Authority. Proposal blanks and envelopes will be furnished without charge.

Bids: October 25, 1955

Contracts 451 and 452

WEST DELAWARE TUNNEL

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 11:00 A.M., Eastern Daylight Saving Time, (10:00 A.M., Eastern Standard Time), on Tuesday October 25, 1955, for the following two contracts for the construction of the westerly portion of the West Delaware Tunnel of the Delaware system, comprising about 20 miles of concrete lined pressure tunnel, circular in section and 11 feet 4 inches in finished diameter, and Shafts 1 to 3 inclusive, 14 feet in diameter, which will be circular in section and lined with concrete, all as set forth in the specifications:

CONTRACT 451, for the construction of about 43,000 liner feet of tunnel, including an intake channel and Shaft 1, approximately 520 feet deep, located in the Towns of Tompkins and Hancock, Delaware County, New York.

CONTRACT 452, for the construction of about 60,000 linear feet of tunnel, including Shaft 2, approximately 310 feet deep, and Shaft 3, approximately 460 feet deep, located in the Towns of Hancock and Colchester, Delaware County, New York.

A bidder on both of these contracts may, if he so desires, specify in the bid form of either or both contracts, that he will agree to make a percentage reduction from the total cost of the contract, if both contracts are awarded to him.

Pamphlets of the two contracts containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in the Chief Clerk's office, Room 1317 at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners; Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: November 3, 1955

City of Tampa, Florida

Sewer Improvements

Sealed proposals for construction of Vitrified Clay Pipe Sewers complete with all appurtenances, will be received at the regular meeting place of the Board of Representatives, City Hall, Tampa, Florida, until 2 P.M., E.S.T., November 3, 1955, there to be publicly opened and read aloud.

The work is divided into six Divisions. The Bidder may submit a proposal for any Division, all Divisions, or any combination of Divisions.

The approximate quantities of the principal work involved are as follows:

Div. XE17—62,700 Lin. ft. of 8-inch V.C. pipe sewers
Div. XE18—53,440 Lin. ft. of 8, 10 and 12-inch V.C. pipe sewers
Div. XE19—41,560 Lin. ft. of 8, 10 and 12-inch V.C. pipe sewers
Div. XE20—26,800 Lin. ft. of 8 and 12-inch V.C. pipe sewers
Div. XE21—66,780 Lin. ft. of 8 to 21-inch V.C. pipe sewers
Div. XE22—23,400 Lin. ft. of 8-inch V.C. pipe sewers.

Plans and Contract Documents may be examined at and obtained from the offices of the Bureau of Sanitary Sewers, 6th Floor, City Hall, Tampa, Florida, and the offices of Greeley and Hansen, Engineers, 220 South State Street, Chicago 4, Illinois. A deposit of $25.00 is required for each set of contract documents covering the six divisions.

City of Tampa, Florida
By Curtis Hixon, Mayor
Dated September 28, 1955

Prequalification Date: October 12, 1955

Board of Education Bureau of Construction

Notice Re Prequalification Forms For Contractors

NOTICE IS HEREBY GIVEN THAT THE Director of the Bureau of Construction, Fourth Floor, 42-15 Crescent Street, Long Island City 1, New York, will receive applications for prequalification of bidders, from contractors who may wish to submit bids for the proposed hereinafter specified contracts, as follows:
For (1) general construction, (2) plumbing and drainage, (3) heating and ventilating. (4) electrical work and lighting fixtures for the following schools:
BOROUGH OF BROOKLYN
Junior H. S. 66, Osborn & Watkins Sts. Modernization.
BOROUGH OF BRONX
Junior H. S. 143, West 231st St. & Sedgwick Ave., New Building.
BOROUGH OF MANHATTAN
Junior H. S. 44, Columbus Ave. and West 76th St., New Building.
BOROUGH OF QUEENS
P. S. 47, Shad Creek & Power Road, 196th & 197th Sts., New Building.
Prequalification application forms will have to be secured and must be submitted to the Director, Bureau of Construction office, 4th Floor, Room 407, 42-15 Crescent Street, Long Island City 1, New York.
Bids will be received from prequalified bidders only.
The time for submitting prequalification application forms for the above contracts will expire on Wednesday, October 12th, 1955.
WILLIAM H. CORREALE
Director
Dated: September 26th, 1955.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Invitation No. DS-4522) will be received at Denver, Colorado, until November 17, 1955, for furnishing two or three sets each of two motor-driven, vertical-shaft, turbine-type pumping units, each set with a capacity of 300 gpm under a total head of 1,740 feet; one diesel-electric generating set for driving above pumps; and motor control equipment for Anjar Spring Pumping Plant, Lebanon Project. Delivery is desired within 345 days. For particulars, address Bureau of Reclamation, Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation.. Sealed bids (Specifications No. DC-4528) will be received at Riverton, Wyoming, until November 16, 1955, for furnishing labor and materials for earthwork and structures, Cottonwood Drain Terminal Wasteway, Wyoming Canal Lateral System, Riverton Project, Wyoming. Location near Riverton, Wyoming. Principal items are 6,350 cu. yds. excavation; 28 cu. yds. concrete; 1,315 lin. ft. furnishing and laying 30-inch diameter HC50 concrete pressure pipe; 580 lin. ft. furnishing and laying 36-inch diameter HC50 concrete pressure pipe; and other work. Completion time 180 days. For particulars, address Bureau of Reclamation, P. O. Box 2553, Billings, Montana; P. O. Box 71, Riverton, Wyoming; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: October 26, 1955

Power Authority of the State of New York

ST. LAWRENCE POWER PROJECT
ADVERTISEMENT FOR PROPOSALS
FOR
THE FURNISHING AND DELIVERY OF
FIXED HOIST ASSEMBLIES
FOR
LONG SAULT DAM
SPECIFICATIONS NO. PA-5-15076
ST. LAWRENCE CONTRACT NO. P28

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW

YORK will receive sealed proposals for the manufacture and furnishing of eighteen (18) Fixed Hoist Assemblies for Long Sault Dam and delivery thereof f.o.b. the Authority's classification yard, Massena, New York in the following ways:

(1) If brought in person, on the day of receiving bids until 10:30 A. M. Eastern Daylight Saving Time on the 26th day of October, 1955, 270 Broadway, Hearing Room C on the sixth floor, New York 7, New York.

(2) If mailed in, until 10:15 A. M. Eastern Daylight Saving Time, on the 26th day of October, 1955, at the Authority's office, 270 Broadway, Room 1300, New York 7, New York.

The proposal will be publicly opened and read aloud at the time and at the address given in (1) above.

Bids will be entertained for eighteen 175 ton fixed hoists and accessories together with the structural steel supporting structures and towers upon which the hoists are mounted.

Bids will not be restricted to American manufacturers.

Plans, specifications and proposal forms for the work will be on file in the Authority's office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and the Hydro-Electric Power Commission of Ontario, 620 University Avenue, Toronto 2, Ontario, and may be inspected by prospective bidders during office hours, and may be obtained from the Power Authority of the State of New York, 270 Broadway, Room 1300, New York 7, New York, upon application and prepayment of a fee of Twenty ($20.00) dollars per initial set of contract documents and Ten ($10.00) dollars per set for additional sets, no part of which will be refunded. Two sets must be returned with each bid.

Bids must be made in duplicate upon the proposal forms included in and bound with the Contract Documents. A bid deposit will be required with each bid in an amount not less than 10 percent of the maximum price bid for any bid schedule.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

September 23, 1955

Bids: October 18, 1955

State of New Jersey
State Highway Department
Trenton

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE S40 (1927) ROUTE 72 (1953), SECTION 5-C, MANAHAWKIN BAY BRIDGE, CONTRACT #1—SUBSTRUCTURE

Route S40(1927) Route 72(1953), Section 5-C, Manahawkin Bay Bridge, Contract No. 1—Substructure, Stafford Township, Ocean County. Federal Project No. F-130(4). The principal items of construction are:

Estimated:	10,832	cu. yds. Concrete in Structures
	4,334	cu. yds. Seal Concrete
	894,820	lbs. Reinforcement Steel in Structures
	98,120	lin. ft. Untreated Timber Piles
	7,130	lin. ft. Cast-in-place Concrete Piles
	61,359	sq. ft. Steel Sheet Piling left in place
	116	cu. yds. Granite Masonry

Bids for the above will be received at the office of the State Highway Department, in the CAFETERIA, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J., on Tuesday, October 18, 1955, at NINE o'clock (9:00 A.M.—EASTERN STANDARD TIME), TEN o'clock (10:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plan and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 350, 83rd Congress, and is to be performed in accordance with the "Required Provisions—Federal Aid Contracts" of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications. The attention of the bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans and supplementary specifications will be furnished upon payment of a fee of FIFTEEN DOLLARS ($15.00) for each set upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Ave., Trenton, N. J., with a check drawn to the order of the State Highway Department. A charge of $5.00 will be made for supplementary specifications unaccompanied by construction plans. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by the following documents: (1) a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500. nor more than $20,000.; (2) a proposal bond for a sum of not less than fifty percent (50%) of the total price bid for the project; (3) a financial statement (Part 1 of the Prequalification Questionnaire); (4) a plan and equipment statement (Part 3 of the Prequalification Questionnaire); and (5) a Non-collusion Affidavit executed in duplicate; and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed:
STATE HIGHWAY DEPARTMENT
A. Lee Grover, Chief Clerk

Bids: October 19, 1955

Texas Turnpike Authority

DALLAS-FORT WORTH TURNPIKE PROJECT
NOTICE TO CONTRACTORS

Sealed proposals for constructing one twin bridge located at Village Creek covered by Contract No. D-FW 29, in Tarrant County, will be received at the Texas Turnpike Authority, 214 First Federal Savings Building, Austin 1, Texas, until 2:30 P. M., October 19, 1955, and then publicly opened and read.

This is a "Turnpike Project" as defined in House Bill No. 4, Chapter 410, Page 967, Acts of the 53rd Legislature, 1953, Regular Session (Codified as Article 6674v, VRCS). No provisions herein are intended to be in conflict with the provisions of said Act.

Section 5(m) of said Act states that "All contracts of the Authority for the construction, repair, or maintenance of any turnpike project shall, insofar as applicable, be made and awarded under the same conditions, terms, requirements and provisions as are now provided for with respect to contracts of the State Highway Department in Sections 8 and 9 of Chapter 186, pages 457, 458, Acts, Thirty-ninth Legislature, 1925, as amended by Chapter 103, page 286, Acts, Forty-third Legislature, First Called Session, 1933, and Sections 10 and 13 of Chapter 186, page 458, Acts, Thirty-ninth Legislature, 1925, codified as Article 6674n, 6674i, 6674j, and 6674m, Vernon's Civil Statutes, and in the making and awarding of such contracts, the Authority shall, insofar as applicable, be under the same duties and responsibilities with respect thereto as are now imposed upon the State Highway Department by the terms and provisions of the Statutes herein enumerated".

In accordance with the provisions of said House Bill, the Texas Turnpike Authority has adopted from the Texas Highway Department and set forth in the proposal the wage rates, for each craft or type of workman or mechanic needed to execute the work on the above named project, now prevailing in the locality in which the work is to be performed, and the Contractor shall pay not less than those wage rates as shown in the proposal for each craft or type of laborer, workman or mechanic employed on this project.

Legal holiday work shall be paid for at the regular governing rates.

Plans and specifications covering the proposed construction may be seen for examination and information at the office of the Texas Turnpike Authority, 214 First Federal Savings Building, Austin 1, Texas, at the Dallas-Fort Worth Turnpike Project Office at 315 S. E. 14th Street, Grand Prairie, Texas, and at the office of the Section Engineer, Turnpike Engineers, at 205 West Main Street, Arlington, Texas. Proposals and plans may be obtained from the Texas Turnpike Authority, 214 First Federal Savings Building, Austin 1, Texas, upon the payment of Twenty-five ($25.00) dollars which sum will not be refunded. The usual rights are reserved.

COMMONWEALTH OF VIRGINIA, DEPARTMENT OF HIGHWAYS, RICHMOND, VIRGINIA, September 28, 1955. Sealed Bids will be received at the Department of Highways, Room 400, Central Highway Office Building, 1221 East Broad Street, Richmond, Virginia, until 10:00 A.M., Wednesday, November 16, 1955, on Hampton Roads Project, Contract No. C-3 for the construction of: Cut and Cover Tunnel Sections, Ventilation Buildings and Tunnel Open Approaches. Crash Truck Buildings including foundations; Mechanical and Electrical Work, Complete. Miscellaneous Work, including railings on Tunnel and Bridge Approaches, hand rail in Tunnel, Police Booths, and sidewalks, curbs and walls and rough grading on Portal Islands. Prospective bidders will meet the Virginia Department of Highways' Representative at the Chamberlin Hotel, Old Point Comfort, Virginia, 10:00 A.M., Friday, October 14, 1955, to be shown over the location of proposed work. Plans and Specifications are on file at the Richmond Office; Director of Ferries, Norfolk, Virginia, and Parsons, Brinckerhoff, Hall and Macdonald, Engineers, 51 Broadway, New York 6, N. Y. Cost of Plans and Specifications: $82.50—Additional Specifications: $7.50. NO REFUND ALLOWED. Proposal Guaranty: A certified or cashier's check, made payable to the Commonwealth of Virginia, in the sum of not less than one per cent (1%) of the Bid Lump Sum Price. In addition to the above, the bidder shall furnish a Proposal Bond made payable to the Commonwealth of Virginia, in an amount of not less than twenty per cent (20%) of the Bid Lump Sum Price. Such Bond shall be executed on the form furnished by the Department of Highways and shall meet all the requirements of the State of Virginia. This Proposal Bond shall be signed by a local resident agent. Contractors must have on file approved prequalification papers prior to receiving proposals. The Commission reserves the right to reject any or all proposals submitted in response to this advertisement, and to waive technicalities as it may deem best for the interest of the State. PLANS WILL NOT BE MAILED PRIOR TO RECEIPT OF PAYMENT OF COST SHOWN IN THIS ADVERTISEMENT.

Bids: November 7, 1955

City of Fort Myers
Fort Myers, Florida

NOTICE TO CONTRACTORS
SEWAGE COLLECTION AND TREATMENT PROGRAM

Sealed proposals will be received by the City of Fort Myers, Florida, until 8 PM, November 7th, 1955, at which time they will be publicly opened and read.

The work consists of constructing a 3.5 MGD sewage treatment plant, outfall sewer and four sewage pumping stations; approximately 110,000 linear feet of interceptor, trunk, main and lateral sewers; modification or demolition of 8 existing sewage pumping stations; two package lift stations and appurtenant work, located in the City of Fort Myers.

All work performed shall be in accordance with plans, specifications and contract documents which may be obtained from GEE & JENSON, INC., CONSULTING ENGINEERS, 309 Comeau Building, West Palm Beach, Florida, for the sum of $25 which amount will not be refunded.

Publish October 6, 1955

OFFICIAL PROPOSALS

Bids: November 9 and 10, 1955

City of Lancaster Authority
Lancaster, Pennsylvania

Sealed proposals will be received by the City of Lancaster Authority in the Council Chamber of the Municipal Building, Lancaster, Pennsylvania until the date and time mentioned under each contract below, at which place and hour they will be publicly opened, for furnishing all necessary labor, materials, and equipment and performing all work necessary for the construction required to complete each contract.

The right is reserved to reject any or all proposals, and to readvertise and award the contract in the regular manner, or to waive any informality in the proposals received and to accept any proposal deemed to be most favorable to the interest of the City of Lancaster Authority.

Bids will be taken under advisement and the award of the contract, if awarded, will be made within forty-five (45) days after the date of opening the bids.

Each proposal must be accompanied by a money deposit in the form of a certified check on a solvent bank, payable to the City of Lancaster Authority, in an amount not less than ten (10) per cent of the bid total, in accordance with the provisions contained in the Specifications. A satisfactory bidders bond will be accepted in lieu of check. The deposits of bidders other than the one to whom the contract is awarded will be returned immediately after the award is made. The successful bidder will be required to execute a contract and furnish bonds within ten (10) days from the date of notice of award delivered or mailed to him. Upon execution of the contract and approval of the bonds the deposit of the successful bidder will be returned. The amount of security required for the faithful performance of the work will be one hundred (100) per cent of the estimated cost of the work according to the contract price.

Copies of the Contract Documents, including Drawings and Specifications, may be seen at the offices of Gannett Fleming Corddry and Carpenter, Inc., 600 North Second Street, Harrisburg, Pennsylvania, or 213 West Orange Street, Lancaster, Pennsylvania, on or after October 3rd, 1955; or they may be obtained upon deposit of the various sums stated under each contract.

Contract No. 1—15 Million Gallon Reinforced Concrete Reservoir. Plans and Specifications thirty ($30.00) dollars with full refund to bidders or ten ($10.00) dollars refund to others for all sets returned in good condition. Bids to be opened 10:00 A.M., November 9, 1955.

Contract No. 2—42" Pipe Line and Appurtenances. Major quantities 24,100 feet 42" steel or concrete pipe, 960 feet 36" steel pipe, 860 feet 30" steel pipe. Plans and Specifications fifty ($50.00) dollars with full refund to bidders, or twenty ($20.00) dollars to others for all sets returned in good condition. Bids to be opened 2:00 P.M., November 9, 1955.

Contract No. 3—42" Pipe Line and Appurtenances. Major quantities 31,400 feet steel or concrete pipe. Plans and Specifications fifty $(50.00) dollars, full refund to bidders, or twenty ($20.00) dollars to others for all sets returned in good condition. Bids to be opened 2:00 P.M., November 9, 1955.

Contract No. 4—General Contract—8 M.G.D. Filter Plant. Includes filter building, clarifiers, two pumping stations, mechanical equipment, river intake. Plans and Specifications sixty ($60.00) dollars, full refund to all bidders, thirty ($30.00) dollars refund to others for all sets returned in good condition. Bids to be opened 10:00 A.M., November 10, 1955.

Contract No. 5—Electrical Work on 8 M.G.D. Filtration Plant and Two Pumping Stations. Plans and Specifications thirty ($30.00) dollars, full refund to bidders, fifteen ($15.00) dollar refund to others for all sets returned in good condition. Bids to be opened 10:00 A.M., November 10, 1955.

Contract No. 6—Heating on 8 M.G.D. Filtration Plant Building and Two Pumping Stations. Plans and Specifications twenty-five ($25.00) dollars, full refund to bidders, ten ($10.00) dollars refund to others for all sets returned in good condition. Bids to be opened 2:00 P.M., November 10, 1955.

Contract No. 7—Sanitary Plumbing on 8 M.G.D. Filtration Plant and Two Pumping Stations. Plans and Specifications twenty-five ($25.00) dollars, full refund to bidders, ten ($10.00) dollars refund to others for all sets returned in good condition. Bids to be opened 2:00 P.M., November 10, 1955.

Contract No. 8—300,000-Gallon Elevated Tank. Furnish and erect all structural work. Foundation not included. Plans and Specifications ten ($10.00) dollars, no refund. Bids to be opened 10:00 A.M., November 9, 1955.

Contract No. 9—Bridgeport Area Distribution System. Major quantities, all pipe class 150 M.J., 6,800 feet 12", 5,100 feet 8", 21,000 feet 6", 1,300 feet 4", 38 hydrants, 330 service connections. Plans and Specifications ten ($10.00) dollars, no refund. Bids opened 10:00 A.M., November 9, 1955.

Contract No. 10—New Holland Pike Distribution System. Major quantities, all pipe class 150 M.J., 2,680 feet 16", 5,500 feet 10", 17,300 feet 6", 530 feet 4", 24 hydrants, 180 service connections. Plans and Specifications ten ($10.00) dollars, no refund. Bids opened 10:00 A.M., November 10, 1955.

Contract No. 11—Quarryville Pike Distribution System.

Contract No. 12—Willow Street Distribution System.

Contract No. 13—Neffsville Distribution System.

These three (3) contracts are similar to 9 and 10. Plans ready October 17th. Plans and Specifications ten ($10.00) dollars for each contract, no refund. Bids opened on Contract No. 11 at 2:00 P.M., November 9, 1955. Bids opened on Contracts No. 12 and No. 13 at 2:00 P.M., November 10, 1955.

City of Lancaster Authority
W. E. Alexander, Chairman

Bids: October 19, 1955

Texas Turnpike Authority
DALLAS-FORT WORTH TURNPIKE PROJECT
NOTICE TO CONTRACTORS

Sealed proposals for constructing eight bridges located at Sandy Lane Road, Morrison Drive, Cooke's Lane, Henry Road, Bedford-Arlington Road, Beady Road, Duncan Perry Road and Nelson Street covered by Contract No. D-FW 27, in Tarrant and Dallas County, will be received at the Texas Turnpike Authority, 214 First Federal Savings Building, Austin 1, Texas, until 2:30 P. M., October 19, 1955, and then publicly opened and read.

This is a "Turnpike Project" as defined in House Bill No. 4, Chapter 410, Page 967, Acts of the 53rd Legislature, 1953, Regular Session (Codified as Article 6674v, VRCS). No provisions herein are intended to be in conflict with the provisions of said Act.

Section 5(m) of said Act states that "All contracts of the Authority for the construction, repair, or maintenance of any turnpike project shall, insofar as applicable, be made and awarded under the same conditions, terms, requirements and provisions as are now provided for with respect to contracts of the State Highway Department in Sections 8 and 9 of Chapter 186, pages 457, 458, Acts, Thirty-ninth Legislature, 1925, as amended by Chapter 103, page 286, Acts, Forty-third Legislature, First Called Session, 1933, and Sections 10 and 13 of Chapter 186, page 453, Acts, Thirty-ninth Legislature, 1925, codified as Article 6674n, 6674i, 6674j, and 6674m, Vernon's Civil Statutes, and in the making and awarding of such contracts, the Authority shall, insofar as applicable, be under the same duties and responsibilities with respect thereto as are now imposed upon the State Highway Department by the terms and provisions of the Statutes herein enumerated".

In accordance with the provisions of said House Bill, the Texas Turnpike Authority has adopted from the Texas Highway Department and set forth in the proposal the wage rates, for each craft or type of workman or mechanic needed to execute the work on the above named project, now prevailing in the locality in which the work is to be performed, and the Contractor shall pay not less than those wage rates as shown in the proposal for each craft or type of laborer, workman or mechanic employed on this project.

Legal holiday work shall be paid for at the regular governing rates.

Plans and specifications covering the proposed construction may be seen for examination and information at the office of the Texas Turnpike Authority, 214 First Federal Savings Building, Austin 1, Texas, at the Dallas-Fort Worth Turnpike Project Office at 315 S. E. 14th Street, Grand Prairie, Texas, and at the office of the Section Engineer, Turnpike Engineers, at 205 W. Main, Arlington, Texas. Proposals and plans may be obtained from the Texas Turnpike Authority, 214 First Federal Savings Building, Austin 1, Texas, upon the payment of Twenty-five ($25.00) dollars which sum will not be refunded. The usual rights are reserved.

U. S. Government

NAME AND LOCATION OF PROJECT—Project No. 53-103, Additional Section of Intercepting Sewer Charlotte Amalie, St. Thomas, Virgin Islands. DEPARTMENT OR AGENCY—OFFICE OF TERRITORIES, DEPARTMENT OF THE INTERIOR, by (issuing office) Division of Insular Affairs, Office of Territories, Department of the Interior, Room 6412 Interior Building, Washington 25, D. C. Sealed bids in single copy for furnishing all labor, equipment, and materials and performing all work for the project described herein will be received until 3:00 P.M. Atlantic Standard Time, October 20, 1955, in the Office of the Director, Virgin Islands Public Works, Division of Insular Affairs, Office of Territories, Department of the Interior, Charlotte Amalie, St. Thomas, Virgin Islands and then publicly opened and read aloud. Information regarding bidding material, bid guarantee, and bonds, plans and specifications and other proposed contract documents are open for public inspection at the office of the Director, Virgin Islands Public Works, Division of Insular Affairs, Office of Territories, Department of the Interior, Charlotte Amalie, St. Thomas, Virgin Islands; R. L. Kenan & Associates, Consulting Engineers, Bell Building, Montgomery, Alabama; Lester M. Marx, Room 2713 Interior Building, Washington 25, D. C.; Housing and Home Finance Agency, Room 313 N. Y. Department Store Building, 1064 Ponce de Leon, Santurce, Puerto Rico; A.G.C. Office, 1113 Congress Building, Miami, Florida; Builders Exchange, 46 Northeast 6th Street, Miami, Florida; F. W. Dodge Corporation, 119 West 40th Street, New York 18, N. Y.; and A.G.C. Office at Palm Beach, Florida. Plans and specifications may be procured from the office of R. L. Kenan & Associates, Consulting Engineers, Bell Building, Montgomery, Alabama, upon deposit of $20.00. Deposit shall be only by certified check payable to the Treasurer of the United States, which will be refunded to bona fide bidders upon the return of plans and specifications in good condition within thirty (30) calendar days from the date of bid opening. A bona fide bidder includes any person who submits a bid for a general contract, but does not include a person who submits a quotation to the general contract bidders. To persons who procure plans and specifications upon payment of $20.00 and who do not submit a bid, $15.00 will be refunded upon the return thereof, in good condition, within thirty (30) calendar days from the date of bid opening. No refund will be made for return after that time. Bonds, etc.—Each bid must be accompanied by a satisfactory bid guaranty in an amount not less than 5 percent of the total bid. The successful bidder will be required to furnish a performance bond and payment bond, each in the amount of 100 percent of the contract price. No bid may be withdrawn until thirty (30) calendar days after the scheduled closing time for the receipt of bids. The Government reserves the right to waive any informality and to reject any or all bids, when such is in the interest of the Government. Description of Work—The construction of an additional section of the intercepting sewer, paralleling the existing 18-inch V.C. intercepting sewer, or meandering in the same general direction, from the vicinity of NY Tvaer Gade to the Lift Station near the French Village which includes the following approximate quantities: 1 Reinforced Concrete Grit Chamber, 11 Concrete Manholes (0 to 14 depth), 260 Lin. Ft. 8" Pipe (Hauling and Installing Only), 500 Lin. Ft. 10" Pipe (Hauling and Installing Only), 1,070 Lin. Ft. 18" Pipe (Hauling and Installing Only), 440 Lin. Ft. 20" Pipe (Hauling and Installing Only). The cast iron sewer pipe will be furnished at St. Thomas, Virgin Islands from Government surplus. The majority of trench for 18" and 20" sewer will be in dredged fill and the pipe invert will be approximately 6′ to 8′ below sea level in trenches 8′ to 12′ deep.

Contractors Watch This Section—

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

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The advertising rate is $24.25 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

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Send NEW ADS to ENGINEERING NEWS-RECORD, 330 W. 42nd St., N. Y. 36, N. Y. for October 20th issue closing October 10th.

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NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Construction Foreman for firm engaged in extensive sewer, water main and treatment plant facilities. Permanent position in N. Y. State area. Only qualified applicants with broad experience. P-6595, Engineering News-Record.

Building Construction Superintendent — Wanted at once for large school project in Cedar Rapids. Must be well qualified and experienced. Project duration approximately two (2) years. Position permanent for right man. Write stating qualifications, habits, experience, previous employment, references, availability, and salary expected. Address reply to R. F. Ball Construction Company, Inc., Post Office Box 2300, San Antonio, Texas.

Experienced structural designers and detailers for work on reinforced concrete and steel highway structures with consulting engineers. Please give age, qualifications and salary requirements in reply. P-7462, Engineering News-Record.

Structural Engineer for building design Ketchum and Konkel, Consulting Engineers, 1090 Fox Street, Denver 4, Colorado.

Estimator for established firm engaged in the engineering and construction of complete industrial plants. Should have at least five years experience in pricing labor and material on large scale industrial projects. Location, Pittsburgh. Please furnish resume of experience and training. P-7647, Engineering News-Record.

Civil Engineer—For plan engineer position. Duties include sewer and water main design and field work. Salary range $385 to $460 per month. Apply City Engineer, City Hall, South Milwaukee, Wisconsin.

Estimator wanted for permanent position with pharmaceutical firm. Should be familiar with building construction, chemical equipment installation and industrial maintenance. Will estimate labor performed by company craftsmen in the several trades as well as costs of materials, equipment, etc. Should have sufficient experience and be capable of compiling a unit cost manual for use by the Engineering Department. Engineering degree desirable but not absolutely necessary. P-7882, Engineering News-Record.

Civil Engineer, research and development—experienced in asphalt pavement construction and with ability to prepare construction specifications and technical manuals. Pleasant living conditions with special employment benefits. Location East Coast. State salary expected. P-7887, Engineering News-Record.

Assistant Chief Engineer, project engineer, design engineer, project supervisor, positions with industrial organization developing new and unusual metal forming and treating processes. Necessary to have engineering degree and experience background in machine design. Work is highly varied and directed toward fields having strong future. Post graduate training desirable but not essential. Salary to match experience and training. Ideal West Coast community and environmental factors. P-7888, Engineering News-Record.

Construction Supts—with gunite, grodting and all around experience—location East—steady employment and high pay for capable men. Please send resume of experience. Our employes know of this ad. P-7807, Engineering News-Record.

(Continued on following page)

ENGINEERS — DESIGNERS

Chemical - Mechanical - Electrical - Structural - Piping

San Francisco assignment

Recent design experience on petroleum refineries, chemical plants, or related projects. Compensation commensurate with ability. Liberal moving allowances.

Please write furnishing complete chronological experience record and salary history, also full details regarding education, salary desired, businesss and character references.

BECHTEL CORPORATION

220 Bush Street **San Francisco 4, Calif.**

MECHANICAL ENGINEER

Graduate Mechanical Engineer experienced in the operation of Fourdrinier paper machines, refining and related equipment for large expanding and progressive mill in Middle Atlantic States. Under 35 years of age. Good salary and excellent opportunity for advancement. Give detailed resume of experience. Send resume to

Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

CHIEF CHEMIST

degree and experience in chemical testing of construction materials, cement, asphalt, metals by ASTM & AASHO. Knowledge in use of Spectrophometer desirable, not essential. Location, Gulf Coast. Send complete resume and Sale requirements to Box

P-7808, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

BRIDGE ENGINEERS

Civil Graduates of accredited U. S. colleges. Must have not less than the following experience:

Detailers—2 years structural steel or reinforced concrete detailing.

Designers—4 years responsible work on structural steel and concrete including work on long span bridges.

Mail complete resume together with salary required to:

Howard, Needles, Tammen & Bergendoff
55 Liberty Street **New York 5, N. Y.**

WANTED

GRADE FOREMEN

for work in New Jersey. Top salary.

Call **S. J. GROVES & SONS CO.,**
MR. OAK,
Moorestown, N. J. **9-2600**

SANITARY ENGINEER

Opportunity available for Sanitary Engineer in an expanding pulp and paper mill located in the Middle Atlantic States. Age 25-35 years. Require man experienced in paper mill wastes, paper mill stream pollution and paper mill water purification. No other experience will be given consideration. Good salary and advancement. All replies confidential. Send resume of educational background and industrial experience to Director of Personnel

West Virginia Pulp & Paper Company
Luke, Maryland

SALARIED POSITIONS $5,000 — $35,000

We offer the original personal employment service (established 45 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

R. W. BIXBY, Inc.
659 Brisbane Bldg. **Buffalo 3, N. Y.**

OVERSEAS EMPLOYMENT

Guam Project

BUILDING SUPERINTENDENTS

Must have at least 8 years' supervisory experience on large industrial type projects. Candidates for above position must be familiar with site preparation, installation of temporary buildings, utilities, and the erection and finishing of reinforced concrete type buildings.

Write, giving detailed account of experience, education, etc.

BROWN-PACIFIC-MAXON
"Guam" Contract NBy-13931
P. O. Box 3316, Rincon Annex
San Francisco "19" - Calif.

FOREIGN AIRBASE

Immediate openings for

ARCHITECTURAL
MECHANICAL
HIGHWAY-AIRFIELD
DESIGN ENGINEERS

ESTIMATORS &
DRAFTING SUPERVISORS

Must have degree (or equivalent) plus 6-10 years specialized exp.

MIN. TO $11,000 + OVERTIME

Airmail resume to

P-7757, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

ENGINEEER-LABORATORY DIRECTOR

degree and supervisory experience required. Advanced soil mechanics degree desirable. Must have experience testing soils, concrete, steel, and general construction materials by standard procedures. Location, Gulf Coast. Send complete resume and salary requirements to Box

P-7809, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

SANITARY ENGINEER

Well established Midwestern consulting firm requires the services of an experienced sanitary engineer. Man between 30 and 45 years of age who is experienced in design of sewage and industrial waste plants. Must be able to take complete charge of major projects from preliminary engineering studies through the design and construction stages. Minimum starting income $8,500.00 with extra benefits including retirement and profit participation plans. This is a permanent position with excellent opportunities for advancement. Applicant must be able to perform contact work with clients and direct all phases of the project. Give age, education, experience, and earliest date available. Replies will be held in strict confidence.

P-7897, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

WANTED: ASS'T TRAFFIC ENGR.

For traffic engineering department just recently established. Salary range $554 to $670 a month with maximum salary obtainable through annual and longevity increases. Registration as a professional engineer required. Applications accepted until the needs of the service are filled. Write Personnel Department, City Hall, Madison 3, Wis.

POSITIONS VACANT

(Continued from preceding page)

Assistant Engineer, civil engineering background. Training and experience in one or more of the following: design of subdivisions; sewer and water; streets. This is a career position in a consulting engineer's office. Applicant must be available immediately. Salary to $8000. State experience, education and give references. Lester V. Johnson Associates 2309 Wilson Boulevard Arlington 1, Virginia.

Licensed engineer, superintendent experienced in school construction in Norwalk, Conn. area. Must be able to handle entire job. Two references, state salary. Fabrizio & Martin Inc., 21 McLaren Road, Darien, Conn. OLiver 5-4400.

Mechanic Wanted—experienced with contractors equipment, large shovel tractor, etc. Must have tools. Please furnish references. Job location Tennessee. Permanent. P-7867, Engineering News-Record.

Dam Engineers, minimum of four years experience in construction and/or design of dams, preferably with a working knowledge of soil mechanics and concrete control for duties involving review of plans and specifications, report writing, field investigations and inspections, with some travel and public relations. Opportunity for administrative experience and advancement. Hydraulic engineers, experienced in design and preparation of contact plans for flood control projects. Will be engaged in long range flood control program. Opportunities for gaining broad experience and for advancement. Location. Pennsylvania. Give full details of experience, education, age, salary expected and references. Address replies to P-7870, Engineering News-Record, 330 W. 42nd Street, New York 36, N. Y.

Estimator—Landclearing, logging, transportation fields internationally known manufacturer of heavy equipment has immediate opening for estimator with experience in one of these fields. Position involves field observation and analysis of job application of manufacturer's products. Age 35-up. Excellent opportunity for advancement. All replies confidential. Submit complete details to: R. G. LeTourneau, Inc., Sales Department, Longview, Texas.

Engineer to design and write up specifications for fishways, hatcheries, counting weirs, and other engineering projects and to supervise construction of same. For application forms and further details, write to Alaska Department of Fisheries, 229 Alaska Office Building, Juneau, Alaska.

POSITIONS VACANT

Experienced man to have complete supervision of parts department for heavy construction equipment distributor located in Northern New York State. Must have complete knowledge of parts purchasing and invoicing procedures. Reply P-7856, Engineering News-Record.

Structural Steel detailers and checkers— permanent employment offered to qualified men. Please send experience record and salary required to Pittsburgh Des Moines Steel Company, Santa Clara, California.

General Construction estimator and superintendent—advise education, experience, age, salary expected and when available. Location Syracuse, N. Y. P-7855, Engineering News-Record.

Engineer—young sanitary or chemical, to direct program of state stream pollution control program. Salary $7000.00 per year. Submit education and experience resume West Virginia State Water Commission, 1709 Washington Street, East, Charleston 1, West Virginia.

SELLING OPPORTUNITY OFFERED

Salesman, construction equipment, have exclusive New York City territory for one of leading dealers. Extensive experience necessary. RW-7721, Engineering News-Record.

EMPLOYMENT SERVICE

Salaried personnel, $5,000-$30,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, P. O. Box 674, Manchester, Vermont.

POSITIONS WANTED

Civil Engineer, B.S.C.E. '54. Desires to relocate East or West coast with fabricator, contractor or consultant. Age 31, married. PW-7751, Engineering News-Record.

Senior Structural Engineer registered in several states with connections to State Highway and Bridge Departments wishes partnership with established engineering firm. PW-7886, Engineering News-Record.

Executive—Office Manager—18 years with heavy construction contractor, main office. Thoroughly experienced in all phases of office procedure—finance, insurance, payrolls, etc. A1 business and character references. Interested in connecting with progressive organization. New York Metropolitan Area. PW-7640, Engineering News-Record.

Superintendent—Maintenance 27 years experience in firebrick & chemical brick construction desires position in Western states. Oil refinery, chemical plant or steel plant. Apply to PW-7701, Engineering News-Record.

Civil-Structural Engineer, seasoned with excellent diversified domestic and foreign experience, knowing languages, wishes foreign position of responsibility and trust. PW-7889, Engineering News-Record.

Civil engineer desires work in irrigation, hydro-development, or general consulting. Have varied experience in reinforced concrete & general construction. Married. Mid-West or West preferred. PW-7900, Engineering News-Record.

Sanitary Engineer, grad., registered, 39. 10 years experience all phases water and sewage systems and treatment. 5 years drainage, structural design, misc. Only consider permanent, responsible position in Midwest. PW-7885, Engineering News-Record.

Civil-Structural Engineer, reg. in several states, over 25 years of first class experience desires permanent position of responsibility in bridges and buildings. PW-7892, Engineering News-Record.

WHEN

Answering Advertisements

PLEASE *do not send original letters, certificates or photographs. We cannot be responsible for their return. Please send photostat or carbon copies.*

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NEW "SEARCHLIGHT" ADVERTISEMENTS

received by October 10th will appear in the October 20th issue subject to limitations of space available. Address copy to the

Classified Advertising Division

ENGINEERING NEWS-RECORD

330 W. 42nd St., New York 36, N. Y.

Opportunity for

ARCHITECTURAL STRUCTURAL MECHANICAL and CHEMICAL ENGINEERS

with Record of Ingenuity and Originality in Research and Development of Quality Metal and Plastic Building Components.

Very large, progressive manufacturer in middle western city, who is establishing a new general research and development division, solicits applications for employment from persons qualified by training and experience for this work.

Send complete record of age, training, experience, employment and salary desired with first letter. All applications held strictly confidential and will be acknowledged promptly.

Write To:

P-7320, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

Beautiful SUBURBAN CONNECTICUT . . .

ENGINEERS

and Dorr-Oliver of Stamford

Stamford, on the Connecticut shore is engineers' country. Famed for its fine homes and schools, modern shopping centers, and year-round recreational activities . . . yet it's only 46 minutes from the heart of New York City.

You can enjoy life in this residential community plus the advantages of working with Dorr-Oliver, an internationally known firm of process engineers, founded in 1904. Dorr-Oliver, has an excellent staff, an up-to-date plant. Salaries and benefits (Including group insurance, pensions and bonus plans) are exceptionally generous.

Positions are now open for:

SANITARY ENGINEERS To work with consultants advising on the types and sizes of equipment used for treatment of water, industrial wastes and sewage.

CHEMICAL ENGINEERS Interested in processing methods and equipment either in development or sales engineering.

Please send complete resume, in confidence to:

DORR-OLIVER Incorporated
BARRY PLACE STAMFORD, CONN.

HIGHWAYS ENGINEERS

A rapidly expanding organization devoted exclusively to highway engineering has openings at all levels for men experienced in the design of highways, freeways, expressways and associated work.
Work is in air-conditioned St. Louis office on long-term projects, with ample opportunity for professional development and advancement.
Assistance with moving expenses, excellent employee benefit and retirement plan, Blue Cross, paid vacations and holidays and sick leave.
Please send complete experience record, references, date available and salary desired in first letter.

SVERDRUP & PARCEL ENGINEERING COMPANY
1134 Locust St. St. Louis 1, Mo.

WANTED

Experienced Superintendent

In heavy earth and rock excavation using modern type equipment. Send resume of experience and references.

P-7663, Engineering News-Record
330 West 42nd Street, New York 36, N. Y.

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EMPLOYMENT OPPORTUNITIES

ENGINEERS

HIGHWAYS AND BRIDGES

Designers
Draftsmen
Office Engineers
Maintenance Engineers
Project Engineers
Location Engineers
Soils & Materials Engineers

FIELD SURVEY PERSONNEL

Party Chiefs
Instrumentman
Chainmen

OTHER PERSONNEL

Hydrologist
Equipment Supervisor
Master Mechanic

Domestic and Overseas Assignments
Knowledge of Foreign language necessary in some classifications.

Write giving full particulars concerning education, experience, personal history and availability to:

Richard L. Shaw
Personnel Director
Michael Baker, Jr., Inc.
Consulting Engineers
Baker Building Rochester, Penna.

HEATING & VENTILATING ENGINEER

Graduate Engineer experienced in all phases of paper mill heating and ventilating air conditioning and refrigeration for large expanding and progressive mill in Maryland. Under 35 years of age, good salary, all benefits and excellent opportunity for advancement. Send detailed resume of experience and education to

Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

ENGINEERS and DRAFTSMEN

Growing company expanding engineering division. Opportunities for rapid advancement into management and development work on TV broadcast antenna towers, industrial buildings, aircraft hangars, mechanical parking garages. Liberal benefits, including retirement. Moving expenses paid.

Write
Freeman Mann
DRESSER-IDECO COMPANY
One of the Dresser Industries
875 Michigan Ave.,
Columbus, Ohio

EXPERIENCED HYDRAULICS ENGINEER WANTED

Graduate engineer experienced in paper mill hydraulics, planning and development of piping layout systems, etc. for large expanding and progressive mill in Maryland. Good salary, all benefits and excellent opportunity for advancement. Send detailed resume of experience and education to

Director of Personnel
West Virginia Pulp & Paper Company
Luke, Maryland

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Send NEW ADVERTISEMENTS to N. Y. Office, 330 W. 42nd St., N. Y., 36, N. Y. for October 20th issue closing October 10th

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

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For Sale—Well established surveying practice enjoying reputation for quality work in growing Florida community of sound economy. Excellent opportunity for single owner to net $7000.00 per year on an investment of less than $10,000.00. BO-7749, Engineering News-Record.

Desire to contact utility contractor, preliminary to bidding large housing project in mid-south location. Water lines, gas lines, storm and sanitary sewers, approximately half million dollar sub-contract. BO-7828, Engineering News-Record.

Prestressed Concrete—Plant for production of structural members for bridges and buildings requires capital for expansion. Growth potential virtually limitless. BO-7848, Engineering News-Record.

WANTED

ANYTHING within reason that is wanted in the field served by Engineering News-Record can be quickly located through bringing it to the attention of thousands of men whose interest is assured because this is the business paper they read.

Engineers—Foremen—Office Men

Learn latest methods to organize and run work. Prepare for the top jobs.

Send post card for details.

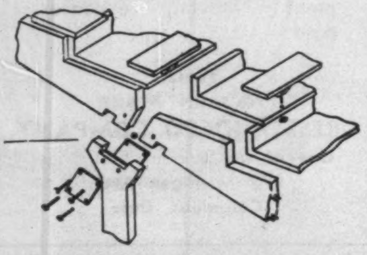
GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
P.O. Box 921 Lake Worth, Florida

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING

OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. Forty-third year. [illegible]

WILSON *Engineering Corp.*
College House Offices HARVARD SQ. CAMBRIDGE MASS.

Good Business for Concrete Contractors



Highly profitable franchises available for sales and construction of patented low cost pre-cast concrete grandstands on a royalty basis. Necessitates companies capable of handling large volume contracts and having experience in sales promotion work. Send for brochure.

Castadia, Inc.
2242 N. 35th St. Milwaukee 8, Wis.

WANTED

NEW or GUARANTEED USED:

Four 250 HP Electric Motors, 1800 RPM, 3-phase, 60-cycle, 440 volts, part winding increment start.

Four 200 HP Electric Motors, 1800 RPM, 3-phase, 60-cycle, 440 volts, part winding increment start.

Four 250 HP, 3-phase, 60-cycle, 440 volt part winding increment starters with disconnect and start-stop buttons in cover.

Four 200 HP, 3-phase, 60-cycle, 440 volt part winding increment starters with disconnect and start-stop buttons in cover.

W-7686, Engineering News-Record
1111 Wilshire Blvd., Los Angeles, Calif.

WANTED TO BUY

Used 2½ yd. SHOVEL
Northwest, Bucyrus Erie or Lorraine
also
Shovel attachment for Northwest
WILLIAMS CONSTRUCTION COMPANY
Box 145, Baltimore 20, Md.
Murdock 6-6600

Wanted
SUPERINTENDENTS
and
CONSTRUCTION FIELD ENGINEERS

Familiar with foundation and heavy construction. Reply—giving full particulars as to age, experience and salary to: E. C. Mardorf

INTRUSION-PREPAKT, Inc.
779-E Union Commerce Bldg. Cleveland 14, Ohio

WANTED
TWO or THREE DRUM HOISTS
for our Rental Department

75 HP, 100 HP or 125 HP, gasoline or electric. Must be late models. State full details, make, age, type of power, and lowest cash price.

EQUIPMENT CORPORATION of AMERICA
P. O. Box J-608 Clifton Heights, Pa.

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"NAUTILUS" launched on Greenheart ways — Strongest of all structural timbers

GREENHEART (Demerara) Inc.
52 Vanderbilt Ave. New York. *MU-6-0410*

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American Steel Stiff Leg Derrick
4 to 6 ton capacity - 70′ Boom
American Two Drum Hoist with Swinger
66 H.P. Gas Engine
WOERMANN CONSTRUCTION COMPANY
3800 W. Pine Blvd. St. Louis, Mo.

$2.95 Each or 2 for $5.00!

Genuine Telephone Company Upright Telephones, complete with cords, in tested and guaranteed condition with 50 ft. of wire, intercommunication instructions. Complete line of telephones and parts, dial, magneto, extension. Intercommunication, army surplus communication equipment, etc. Write for free list. All shipments F.O.B. Simpson, Pa.

TELEPHONE ENGINEERING CO.
Dept. 10Y55 Simpson, Pa.

Excess Contractors Equipment

Subject to prior sale

- Crawler Crane—Lima 604, 85 ft. boom, practically new, 1953.
- Truck Crane—Lorain TL 20, 40 ft. boom
- Compressor — Diesel, Gardner-Denver 500 c.f.
- 2 Compressors—gas, Ingersoll Rand 315 c.f.
- Bulldozer—TD 18 International

National Structures Corp.
4-34 26 Avenue, Long Island City 2, N. Y.
RAvenswood 8-6270

Lorain 820
CRANE OR DRAGLINE
S/N 17646 Cat. 13000 Price $18,500
Wanted—Hyster Towing Winches—All sizes.
A. C. R. CO.
19615 Nottingham Rd., Cleveland 10, Ohio

FOR SALE
One—25 Ton Steel Erectors
Guy Derrick—114′ Mast—105′ Boom
Price $2500
ABERTHAW COMPANY
133 Southampton St., Boston, Mass.
Tel. Highlands 5-6700

Completely rebuilt and guaranteed
KOEHRING TWINBATCH 34E PAVER

Serial #19376, GM diesel, over $4,000.00 in parts and labor used in rebuilding. Machine in perfect condition. Ready for immediate inspection and delivery.
Price $13,000 f.o.b. Chicago.

GIL BOERS EQUIPMENT CO.
7625 S. Kedzie Ave., Chicago 29, Ill.

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1—3½ yd. Bucyrus-Erie Walker type Dragline, 95′ boom, bucket included, electric swings.

Location: Ware, Illinois

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Beardstown, Illinois

FOR SALE

LIMA: Model 604, 1½ C.Y. crawler shovel, Serial No. 4551, with Cummings diesel engine. Equipped with shovel front and 80 ft. boom. Completely overhauled, new engine, excellent condition. Asking $24,200.00. The above is available and ready for work.

POST EXCAVATING CO. INC.
100 Worthington Rd. White Plains, N. Y.
Lyric 2-6334

FOR SALE

Lorain 80 Shovel — Serial #19739 —
D8 Bulldozer — Serial #2U-20960 — Blade and DD — Power Control Unit
TD 24 Bulldozer — Serial 5452 — Blade and DD Power Control Unit
— Reasonable — Excellent Condition —
Subject to prior sale
FS-7880, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

AN AUCTION

CONSTRUCTION EQUIPMENT

Mon. Oct. 17, KANSAS CITY, 9:30 AM, 9½ mi West of KC Kans on Hiway 5. 2 NW 80 D Shovels-good; NW 6 drag-backhoe-good; Lorain 41 drag-backhoe; clam & drag buckets. 4 Cat DW-21's; Scrapers—2 Cat 80's, Cat 60, LeT LS, 4 Woolridge 16-18 yd; 5 Euclid 82FD rear dumps-good; 6 Koehring WD-60 Dumptors, GMC Diesel; 3 Cat #12 patrols, 8T's; #12 9K; 18 Cat D-8 Tractors, some Hi-Output, 1 McCoy Special, some w/dozers, S/No's up to 2U 19105; D-7 Traxcavator; AC HD9G front loader; TD9A loader; 5 D6's w/dozers 9U & 8U's; 4 Cat #25 DDPCU's Fleco rock rake; Trackson tree dozer; Cat dozers; I-R 600 cfm rotary, Joy 630 cfm & smaller compressors-good; 2 Ferguson 50 ton pneumatic rollers, new '55; 7 dd 60" & 40" sheepfoots; Sierra C30 loader; Cat 18 ripper; Rome hd disc for D6 or D7; 24 trucks, tractors, cars, floats; many other pieces. Write-wire auctioneers for full catalog. Each-Piece-Positively-Sells-To-The-Highest-Bidder-Without-Minimum.

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THE AUCTIONEERS
LINCOLN, NEBR.,
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Rebuilt-A1 Condition
48B Bucyrus Erie Shovel 2 cy diesel
Northwest Model 6 Shovel, 1½ c.y.
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3-Caterpillar DW 10's
WILLIAMS CONSTRUCTION COMPANY
Box 145 Balto. 20, Md. Murdock 6-6600

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PILE HAMMERS AND EXTRACTORS
REBUILT AND REPAIRED
AT FACTORY STANDARDS
327 N. BELL AVE., CHICAGO 12, ILL.

LOW COST INSTALLATION AND OPERATION
CABLEWAYS
IMMEDIATE SHIPMENT
ELECTRIC, STEAM OR DIESEL
CAPACITY 3 TO 20 TONS
SELL, RENT OR BUY
AMBURSEN DAM CO. INC.
295 MADISON AVE. NEW YORK

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BRIDGES
BREAKWATERS
FILTRATION AND
SEWERAGE PLANTS

FOR
SPEED
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EFFICIENCY
FLOOD SAFETY
LABOR REDUCTION

FOR SALE
BUCYRUS-ERIE DRAGLINE
Model 9W with 200' boom, 8 cu. yd. bucket.
WILLIAM LUBRECHT, III
Construction Equipment
311 W. Diamond Ave. - Hazleton, Pa.
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FOR SALE or RENT
ONE #0 VULCAN PILE HAMMER
Special 9½x30" Jaws
Excellent Condition—Real Bargain
FS-7826, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

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Vulcan and McKiernan-Terry
Steam Pile Hammers and Extractors
Drop Hammers - Driving Caps
Steel Leads - Pile Driver Hose
Hoists and Boilers

CONTRACTORS MACHINERY CO.
Phone VAlentine 4740
2637 SOUTHWEST BLVD
KANSAS CITY 8, MO.

EUCLIDS

Used 13 yd. bottom dumps
Cummins & General Motors Powered
Located - Texas - Pa. - N. Y. State
Write, Wire or Phone
L. B. SMITH, INC.
Camp Hill, Penna.
Tel: Harrisburg, Regent 7-3431

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ECA SPECIALS

- 1—Butler 100-Ton Bin, 3-compartment with weigh batcher. Center section arranged for cement. Like new.
- 1—American Guy Derrick, Model 4-110, 50-ton cap., steel erectors. 120' mast, 110' boom. New in fall of 1951. Like new cond.
- 2—American Guy Derricks, Model 2-100, 20-ton cap., steel erectors. 110' mast, 100' boom. Like new.
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EDITORIALS

When the President Returns

THE REACTION OF THE NATION to the news of President Eisenhower's illness was a great personal tribute—in the universal affection shown for his person and in the confidence displayed in his leadership, both by the first frightened selling on the stock market, and then by the quick turnabout in sentiment as reason replaced fear. For there is a soundness to the economy and a stability in the government to resist shock that has stemmed from this leadership, and that is a great national asset.

To the thankfulness that goes with the optimistic news on the President's recovery can thus be added thanks for the healthly state of the nation.

Supporting evidence of this health, in so far as construction is concerned, came out of the Associated General Contractors meeting last week where members reported business ahead of last year and "an increasing amount of work coming on the market." This accords with ENR figures that show contract awards for all classes of heavy construction running 31% ahead of last year. And it reflects the situation that led the Commerce and Labor Departments to estimate two weeks ago that construction put in place this year will reach a new high of $43 billion, and that $45 billion is probable for 1956.

When, therefore, the President recovers his health and is back on the job there is every reason for him to find a nation still under a full work load and with its vision of a bright future still unimpaired.

Flood Control on the Delaware

A UNANIMOUS APPEAL to the federal government for help in development of the Delaware River has been voiced by the state administrations of New York, New Jersey and Pennsylvania. This desire for federal government resources—leadership and financial aid—was stressed before the House Government Operations Committee at its recent hearings at Mount Pocono, Pa.

The two-day session of this subcommittee began a series of hearings it will hold on Hoover Commission recommendations. Held as it was in the wake of the Northeast's disastrous August deluge, the session heard much of Delaware River flood control, and at least the subcommittee's chairman, Representative Robert E. Jones of Alabama, went off convinced that "the Hoover Commission does not have the answer to the problem of the Delaware River Basin."

Such a statement is far too dogmatic, just as was the statement of a New Jersey delegate to the hearing who labeled the Interstate Commission on the Delaware River Basin a "failure".

Actually, the Hoover report, calling for minimum reliance on federal assistance, may well have the correct answer for full Delaware River development. And Incodel—the pollution control agency which in 1950 came up with an intelligent plan for full development of water supply on the river—is a "failure" perhaps only in its inability to gain four-state approval.

Until now, flood control in the Delaware Basin has been considered primarily a problem on the tributaries. For example, there have been two reservoirs proposed by the Corps of Engineers for the Lackawaxwen and one proposed for the Lehigh, both tributary rivers in Pennsylvania. Nevertheless the recent claim that a main-river water supply dam, proposed (among other things) in the Incodel Plan, might have been helpful in cutting the damage of the August flood suggests that this possibility of control should be examined.

In any event a flood on an interstate stream should not be cause for crying "help" to the federal government; for labeling sincere interstate efforts as failure; or for relinquishing local control of local problems. On the contrary, the disastrous August flood might indicate desirability of a small amount of federal participation in an Incodel Plan revised as necessary to insure flood control. Such revision, justifying federal participation in costs directly related to flood control, could possibly gain acceptance for the proposed basin-wide development previously deemed unacceptable by Pennsylvania.

A limited amount of federal financial assistance might be just the catalyst for much needed complete development of the Delaware. But it should not be sought in exchange for local leadership and control in development of a great river so primarily a local asset and so secondarily a national problem.

Highway Finance Plans Needed

THE WESTERN ASSOCIATION of State Highway Officials is to be congratulated for having approved a definite plan for financing the badly needed national highway program (ENR Sept. 15, p. 24). More of that type of definite action on the part of other highway groups should be a help in shaping up highway legislation when Congress reassembles.

The WASHO plan is a compromise between one based solely on motor-vehicle taxes and one based on current taxes plus bond issues. It may not be what all members of that association favor, and it may be quite different from what Congress finally adopts. But it has the advantage of being something definite to discuss. What would also be helpful would be for the oil companies and the trucking associations, which opposed the legislation under consideration at the last session of Congress, to submit financing plans that would be satisfactory to them. In that way, the thinking of the opposing groups would be put on the record early for analysis and discussion.

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Concrete mixer drum turns smoothly on TIMKEN® bearings despite cement dust, sand and water

THE drum of this portable Jaeger 16-S Speedline mixer turns smoothly because Timken® tapered roller bearings on the drum shaft *roll* the load instead of slide it. As a result, the mixer runs smoother, lasts longer, requires less maintenance.

And although this 16-S Speedline mixer holds up to 2400 pounds of mix, none of the cement dust, sand and water it works in can get into the bearings. Reason: Timken tapered roller bearings hold shafts and housings concentric, making closures more effective. Lubricant stays *in,* dirt and water stay *out.*

There's no end-play in the drum shaft because Timken bearings are tapered—take *both* radial and thrust loads. They're also used in the wheel hubs of axle assemblies manufactured by the United Manufacturing Co.

When the mixer is jouncing over rough terrain behind a truck, the Timken bearings take the shock loads with ease. Rollers and races are case-carburized to give them a tough, shock-resistant core under a hard, wear-resistant surface.

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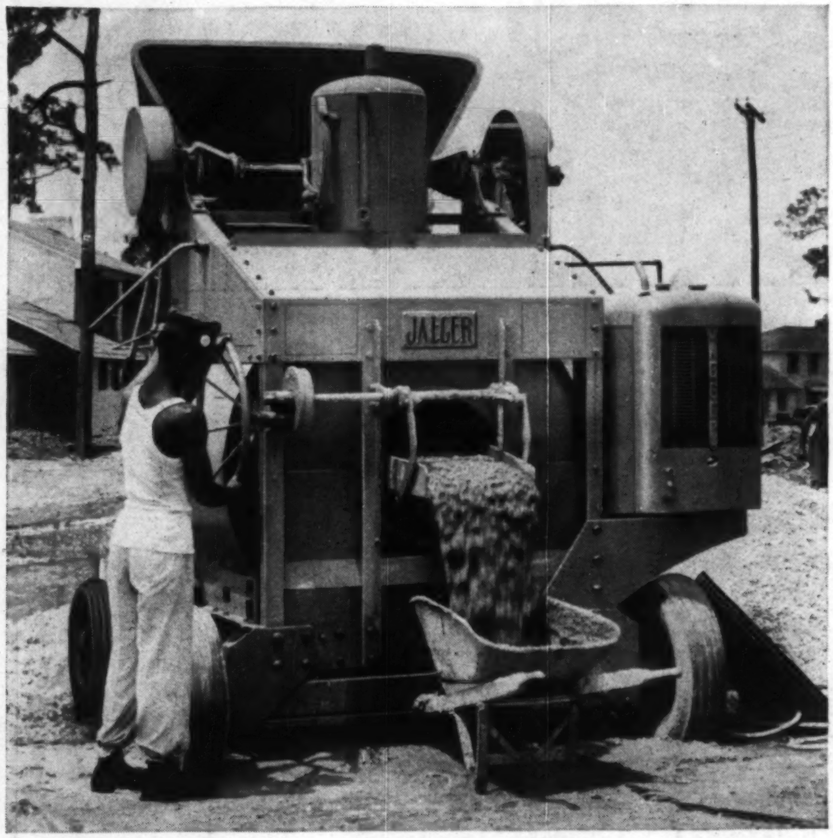
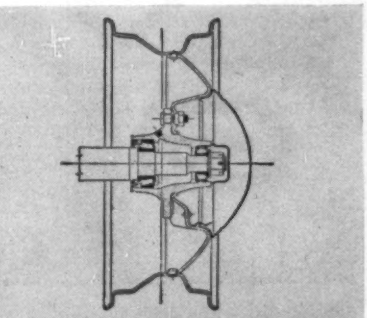
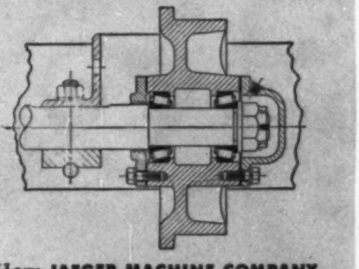
This symbol on a product means its bearings are the best.

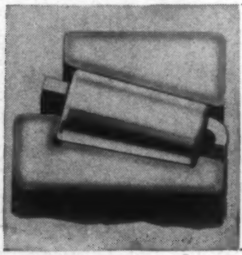




How the **UNITED MANUFACTURING COMPANY** mounts the wheel hubs on axle assemblies using Timken tapered roller bearings to take the heavy shock loads.



How **JAEGER MACHINE COMPANY** mounts the drum roller shaft of its 16-S Speedline Mixer on Timken tapered roller bearings for longer life, less maintenance.



GREATER LOAD AREA

Because the load is carried on the *line* of contact between rollers and races, Timken bearings carry greater loads, hold shafts in line, wear longer. The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis Timken steels.

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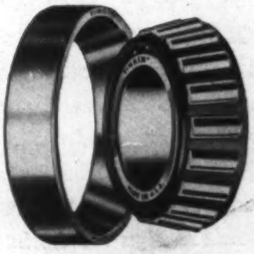
TAPERED ROLLER BEARINGS



NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ↕ AND THRUST → ← LOADS OR ANY COMBINATION ✳